

# Indian Road Development Committee

1927-28.

Evidence

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# Questionnaire issued by the Road Development Committee.

## A.—ROAD DEVELOPMENT.

NOTE.—(a) Roads are assumed to be divided into *classes* on administrative, and into *types* on technical grounds. For example—

Class.....	Provincial, Arterial, District Board, etc., etc.	Type . . . . .	Surfaced, Unsurfaced, etc., etc.
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(b) This questionnaire refers to extra-municipal roads only.

(c) Village roads, if not in the charge of District Boards, should be excluded.

(d) Maps should be to the scale  $\frac{1}{m}$  or 16 miles=1".

1. Please illustrate by map and describe the road system of your province by stating :—

- (i) the mileage of roads of different classes\* and types ;\*
- (ii) the principal bridges existing ;
- (iii) the principal places where bridges are required ;
- (iv) the authority responsible for each class of road ;
- (v) the existing arrangements for financing the construction and maintenance of each class ;
- (vi) the total mileage by types and total expenditure on construction and maintenance on all roads and from various sources in the years 1913-14 and 1923-24 to 1925-26 inclusive ;
- (vii) on the form attached (Appendix I) the details of the expenditure during 1926-27.

2. Please state in terms of miles per—

- (a) hundred square miles of area,
- (b) 100,000 of total population, and
- (c) 100,000 of rural population,

the present total mileage of roads in your province :—

- (i) Surfaced.
- (ii) Unsurfaced.

3. Please state, on the average of the figures for the years 1924-25, 1925-26 and 1926-27,

(a) the following ratios expressed as percentages :

- (i) 
$$\frac{\text{total expenditure on roads from provincial revenue.}}{\text{total provincial revenue.}}$$
- (ii) 
$$\frac{\text{total expenditure on roads from local funds.}}{\text{total local funds revenue.†}}$$

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\* See note (a).

† Excluding grants from provincial revenues specifically earmarked for any purpose.

(b) the incidence per head of—

- |   |  |
|---|--|
| (i) total population  | } of all road expenditure from provin-<br>cial revenues, and |
| (ii) rural population   |  |
| (iii) rural population, of all road expenditure from local funds. |  |

4. What road traffic statistics are maintained in your province? Have you any suggestion to make for their extension or improvement?

5. In what way and to what extent is the road system of your province co-ordinated—

- (a) within the province and
- (b) with the systems of adjacent provinces and States.

6. What are the defects in the existing road system, with special reference to the needs of motor transport; and to what extent will these be remedied by accepted programmes of reclassification and development.

7. Please state your views as to—

- (a) the nature and rate of development desirable to keep pace with the growing needs of motor transport;
- (b) the manner in which such development should be financed; and in particular,
- (c) whether the construction of bridges and roads should be provided for by means of loans, and if so, within what limits.

8. How will the development you contemplate affect railways; and what steps can be taken to secure that roads and railways are co-ordinated in the common interest of transport. How will contemplated road development affect railways; what machinery exists for the co-ordination of road and railway development and what further method would you propose for the purpose?

9. (a) To what extent do you make use of the facilities afforded by the Government Test House, Alipore, for the testing of road material; and are there any directions in which you would wish to see these facilities extended?

(b) To what extent has experiment with and research into—

- (i) the methods and materials of road construction and improvement, and
- (ii) the effect of different classes of traffic upon roads, and similar questions, been carried out in your province; and how are the results utilised?

(c) Are you satisfied with the existing arrangements for the exchange between provinces of the results of experiments and research?

(d) In the event of any assignment being made from central revenues for road purposes, do you consider that provision should be made therefrom for supplementing, subsidising, or co-ordinating and distributing the results of experiment and research?

#### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

1. To what extent has motor transport increased in your province in the years 1913-14 and from 1923-24 to 1926-27?

Please state the number of motor vehicles registered in each of these years, distinguishing—

- (a) Private cars,
- (b) Motor buses (stating the principal bus services, both urban and rural),
- (c) Taxis,
- (d) Commercial goods vehicles,
- (e) Motor cycles.

2. What are the prospects of further development?

3. What special taxation, provincial and local is imposed on motor transport in your province, and how is it assessed?

4. To what extent is such taxation now allocated to expenditure on roads?

5. To what extent do you consider it to be proper that taxation on motor transport, namely—

- (a) central,
- (b) provincial, and
- (c) local,

should be allocated to expenditure on roads?

6. What do you consider to be the most suitable forms of taxation (including customs and excise duties, vehicle taxes, tolls, licence fees, etc.), for this purpose, under each of the following heads, namely—

- (a) central,
- (b) provincial, and
- (c) local?

7. What are your views on the proposal of the Bombay Government (*vide* Appendix II) that an additional duty should be imposed on petrol and the proceeds distributed to the provinces in proportion to their consumption, as shown in the books of the oil companies?

8. What is the most appropriate method of assessing motor vehicles for the purpose of (a) import duty and (b) registration and other fees; whether *ad valorem* or according to horse power, weight, wheel-track,

number of wheels, seating capacity, etc., or by a combination of any of these?

9. Is it possible or desirable to limit the maximum taxation for this purpose that may be imposed by each authority?

10. To what extent is it possible or desirable to arrange for reciprocal exemptions of provincial and local taxation or motor vehicles so that each vehicle is taxed in only one place?

How far would this involve changes in the rules in force in your province relating to registration fees and similar matters?

11. Do you think that revenue from taxation on motor transport should be credited to a separate fund for expenditure on roads, or is it enough if a separate account is maintained by each authority?

12. If revenue from central taxation is allocated to expenditure on roads, which is a provincial transferred subject, in what way should the Devolution Rules be amended so as to make this permissible? See item No. 6 (b) of Part II—Provincial Subjects—of Schedule I of Devolution Rules:—

“6. Public Works, other than those falling under entry 14 of this Part and included under the following heads:—

\* \* \* \* \*

(b) Roads, bridges, ferries, tunnels, ropeways, causeways and other means of communication, subject to the provisions of rule 12-A of these Rules and of any orders made thereunder”.

13 (a) On what objects might revenue from central taxation properly be spent? Should it be allocated for specific objects, such as the construction of specific roads or bridges, or should it be distributed in the form of block grants to provincial Governments?

(b) In what way should revenue from central taxation be allocated to different areas or provinces?

*E. g.*, should the proceeds of a tax on petrol be allocated according to the consumption in each province? Or should the allocation be in proportion to provincial expenditure on roads?

14. Should the principle of taxation for the purpose of road development be extended to vehicular traffic other than motor transport?

15. Is there any road cess in your province? If so, by whom is it paid and on what class of roads is it expended?

#### C.—ROAD BOARDS.

1. Is there now a Road Board in your province? If so, when was it formed?

What are its constitution, present membership and functions?

Of what value has it been in the development of the road system of your province?

2. Do you consider that a Central Road Board should be formed, having regard to—

- (a) the proposal that revenue from central taxation should be allocated to road development;
- (b) the need for co-ordinating provincial programmes of road development;
- (c) the need for co-ordinating the development of roads and railways;
- (d) the need for co-ordinating technical experience and information, and research in road construction?

3. If you consider that a Central Road Board is desirable, what should be its constitution and functions?

4. Alternatively or in addition, by what other means could the necessary co-ordination best be obtained?

#### D.—GENERAL.

Are there any other points covered by the terms of reference\* on which you wish to state your views.

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\* The terms of reference to the Committee are :—

- (1) To examine the desirability of developing the road system of India and, in particular, the means by which such development could most suitably be financed; and
- (2) To consider, with due regard to the distribution of central and provincial functions, whether it is desirable that steps should be taken for the co-ordination of road development and research in road construction by the formation of a Central Road Board or otherwise.

# APPENDIX I.

Form referred to at A. 1 (vii) of the questionnaire.

Province.

Detail of expenditure on road maintenance in 1926-27.

Class. 1	Mileage to nearest ten.			Provincial expenditure Rs. 1000's.			Local fund expenditure Rs. 1000's.			Total expenditure Rs. 1000's.	
	Surfaced. 2	Unsurfaced. 3	Total. 4	Surfaced. 5	Unsurfaced. 6	Total. 7	Surfaced. 8	Unsurfaced. 9	Total. 10	Surfaced. 11	Unsurfaced. 12
1.											
2.											
3.											
4.											
Total											

NOTE.—See also explanatory notes.

*Notes on Appendix I explaining the form giving figures for road mileage and expenditure, 1926-27.*

1. In columns 5 to 12 the expenditure on maintenance should be entered above, and on construction below the line.

2. The figures of maintenance will include all expenditure on roads, bridges, etc., classed as "repairs" and the figures of construction, all expenditure classed as "original works" respectively. It is recognised that it is not possible to relate figures of expenditure on construction to any mileage actually completed during the year, and this is not asked for, the figures of mileage should be as at the end of the year.

3. Under the figures of expenditure in columns 11 and 12 should be noted in brackets, the average cost  $\frac{\text{per mile per year of maintenance.}}{\text{per mile of construction.}}$

If it is not practicable to state an average for the whole province, a separate note should be attached stating the limits within which these figures normally vary under different conditions.

4. Where expenditure has been incurred against capital or loan accounts, the fact and the figures should be given in a separate note.

5. If the figures for 1927-28 are likely to differ substantially from those of 1926-27 an additional form should be filled in for 1927-28 with the latest estimated figures.

## APPENDIX II.

LETTER FROM THE SECRETARY TO THE GOVERNMENT OF BOMBAY, FINANCE DEPARTMENT, NO. 4740-A., DATED THE 16TH MAY 1927, TO THE SECRETARY TO THE GOVERNMENT OF INDIA, DEPARTMENT OF COMMERCE.

I am directed to address you on the subject of the taxation of motors with a view to the formation of a road fund to be devoted to the improvement of communications in this Presidency. As the Government of India are aware, the Government of Bombay have had this question under consideration for some time. The condition of the provincial finance has not enabled Government to keep pace with the growth of motor traffic, and the state of many of the main communications of the province is now such that the question will not brook further delay. Motor omnibus services are rapidly developing in all parts of the Presidency and are being largely used by the poorer classes of the public as a means of linking up outlying areas with the trunk roads and railways. There now exists an organized demand from the motoring public that Government shall tackle the problem forthwith, and the time is ripe for an immediate decision.

2. The fact has been recognized by the Finance Member in his budget speech when he definitely encouraged provincial Governments



to seize the opportunity of the reduction of the import duty on motor cars and accessories to impose provincial taxation for the improvement and development of road communication. The Bombay Government have given much thought to the method of taxation, and have discussed the matter at length with the representatives of various interests. They have arrived at the conclusion that if it can be achieved, a tax on petrol will undoubtedly be the simplest and best method. The *pros* and *cons* of a petrol tax have been debated at such length in England, and set forth in such detail in the report of the Departmental Committee appointed by the Ministry of Transport that it is not proposed to discuss the question in this letter. The Government of Bombay are satisfied that on the whole funds can be raised by this method more cheaply, more equitably, and with less disturbance of the equanimity of the tax payer, than by any other available method.

3. It is however a method which from the nature of things cannot be imposed by a single province, for no machinery exists for the prevention of smuggling, and it would be extremely undesirable to attempt to provide it. The duty must therefore either be imposed simultaneously in all provinces by the provincial Governments, or be collected by central agency and distributed to the provinces in proportion to the provincial consumption. Since Indian States must also be involved, it would appear convenient that the latter alternative should be adopted, and that the duty should be collected simultaneously throughout India under the authority of a single act or order.

It is understood that the oil companies are anxious to co-operate, and are willing to act as agents in the collection of the duty. That is to say, they would raise the price of petrol by the agreed amount, and hand over the proceeds for distribution in the proportion of territorial consumption. Detailed figures of consumption are readily available and the Government of Bombay anticipate that no difficulty would be met with in effecting the proportionate allotment of the revenue. It is suggested that the Indian States should share proportionally in the revenue either on condition that the proceeds be earmarked for road communications or without conditions.

4. The Government of Bombay desire to represent that the present moment is very favourable to the introduction of the proposed duty, when the price of petrol has recently been reduced by 3 as. 6p. It is estimated that a duty of 4 annas per gallon will bring in to this Presidency a revenue of approximately 19 lakhs. This probably more than covers the benefit to the motorists of this province of the reduction in the customs duties: but the local Government do not wish to emphasize unduly this aspect of the case. They are assured that the motoring public will very readily agree to pay a tax in the form of an enhanced price of petrol without careful consideration of benefits received from the reduction of customs duties. Indeed the reduction in the duty on tyres has not yet reached the consumer at all but has been entirely absorbed by the dealers: and to this extent the intentions of the Government of India to benefit the provinces have been frustrated.

This is a matter in which it is hoped that the motoring association may be able to bring pressure to bear on the dealers.

5. The formation of a separate road fund being alien to our financial system it is the intention of the Government of Bombay to give an undertaking to the Legislative Council that an amount equivalent to the proceeds of the tax shall be spent on road communications in addition to the average amount already being spent. If the proposal meets with the approval of the Government of India the question of raising a loan, on the service of which the revenue from the duty could be employed, will be considered as soon as the Provincial Road Board have decided on a programme, which they will shortly be in a position to do.

6. This is a brief sketch of the proposal which the Government of Bombay put forward with the earnest hope that the Government of India will give it their very early consideration. They are aware that the proposal amounts in fact to the imposition of a customs or excise duty to be used for the benefit of the provinces and that it is probably without precedent. But they trust that this will not deter the Government of India from considering on its merits a proposal of such vital interest to the great and growing community of motorists. If the Government of India and the other provinces of India will view with favour the principle of the proposal, it can readily be developed in detail in discussion with the oil companies, and the other interests concerned, who inform us that they are anxious that the scheme should come into operation in the current year.

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### **Supplementary questionnaire issued to railway administrations.**

#### **A.—ROAD DEVELOPMENT.**

1. Can you suggest any directions in which roads of various classes within the area served by your railway can be improved or added to in the interests of transportation generally?

2. Do you consider that the present state and configuration of the road system in your area acts as a restrictive influence on the free movement of traffic and if so, are there any special localities where this is particularly marked?

3. What is the policy of your administration generally as regards new road construction proposals in the vicinity of the railway, including combined road and railway bridges?

#### **B.—MOTOR TRANSPORT AND MOTOR TAXATION.**

1. What is the experience of your railway of the effect of road motor transport on railway business?

2. What is the policy of your administration towards the encouragement of motor transport?

C.—ROAD BOARDS.

1. If a Central Road Board is constituted, in what way do you suggest that its work should be co-ordinated with railway development?

# Replies to the questionnaire submitted by the Government of Madras.

## A.—ROAD DEVELOPMENT.

1. (i) and (vi). Please see APPENDIX I.

1. (ii). Statement showing the number and names of bridges and causeways constructed in the Madras Presidency from 1919-20 to 1925-26.

District.	Name of work and place.	Estimated cost.	When commenced.	Completed or not.
		Rs.		
1. Anantpur .	1. Bridge at Mile 57-6 in Madras-Bombay Road (trunk road).	75,000	1921-22	Completed.
2. Bellary .	2. Gowripur Bridge on the Madras-Bombay Road (trunk road).	51,850	1921-22	Completed in 1922-23.
3. Chittoor .	3. Bridge at Irikipenta . . .	34,000	1920-21	Completed in 1920-21.
	4. Bridge over the Swarnamukhi at Kalahasti (second class road).	3,33,000	1922-23	Completed.
4. Cuddapah .	5. Causeway across the Pennar at Chennur (trunk road).	63,745	1919-20	Completed in 1924-25.
	6. Causeway across the Kundu river (second class road).	88,000	1924-25	Incomplete.
5. South Kanara.	7. Bridge over the Gurpur river (second class road).	5,24,300	1921-22	Completed in 1922-23.
6. West Godavari.	8. Bridge across the West Tammleru (trunk road).	70,000	1925-26	Incomplete.
7. Malabar .	9. Narugampalli bridge (second class road).	92,750	1919-20	Completed in 1922-23.
	10. Pulamanthole bridge (second class road).	2,15,000	1921-22	Incomplete.
8. Ramnad .	11. Bridge across the Vaigai at Manamadura (second class road).	1,30,000	1925-26	Do.
9. Arcot, South	12. Causeway across the Pennar at Tirukkoyilur (trunk road.)	1,95,000	1920-21	Completed in 1924-25.
10. Trichinopoly.	13. Amaravathi bridge at Karur (trunk road).	4,28,100	1919-20	Completed.
	14. Maruthaiyar bridge at Ariyalur (second class road).	1,44,740	1919-20	Do.
	15. Mamundiyar bridge at Manapparai (second class road).	1,16,200	1919-20	Completed in 1923-24.

1. (iii). Please see APPENDIX II.

1. (iv) and (v). *Provincial roads* (P. W. Department). These roads are maintained and entirely financed by the Government.

*Trunk roads*.—These are the main arterial roads and are maintained by District Boards subject to inspection by the Superintending Engineers. The Government have assumed responsibility for the ordinary maintenance of these roads from 1920-21, but the Government grant is limited to Rs. 500 per mile on an average in the district and is paid on the post-payment system. District Boards find the money required towards maintenance in excess of the Government grant. Capital works such as the construction of bridges, causeways, etc., on these roads are financed by Government as funds permit. A list of trunk roads is attached.

*List showing the trunk roads numbered in accordance with the recommendation of the Madras Road Board.*

Number.	Name of trunk road.	Number.	Name of trunk road.
A 1	Great-Northern Trunk Road.	A 13	Ootacamund-Gudalur-Mysore Trunk Road.
A 2	Great-Southern Trunk Road.	A 14	Gudalur-Calicut Trunk Road.
A 3	Madras-Bombay Trunk Road.	A 15	Gudalur-Vayitri-Calicut Trunk Road.
A 4	Madras-Calicut Trunk Road.	A 16	Mangalore-Mercara Trunk Road.
A 5	Madras-Bangalore Trunk Road.	A 17	Hospet-Mysore frontier Trunk Road.
A 6	Chittoor-Kurnool Trunk Road.	A 18	Vizianagram-Karada-Komatlapeta Trunk Road.
A 7	Kurnool-Guntur Trunk Road.	A 19	Ramabhadrapuram-Central Provinces Trunk Road <i>via</i> Itikaralasa.
A 8	Masulipatam-Hyderabad Trunk Road.	A 20	Coimbatore-Satyamangalam-Mysore frontier Trunk Road.
A 9	Kurnool-Bangalore Trunk Road.	A 21	Tellicherry-Coorg Trunk Road.
A 10	Chittoor-Cuddalore Trunk Road.		
A 11	Trichinopoly-Coimbatore Trunk Road.		
A 12	Coimbatore-Ootacamund Trunk Road.		

*Second class roads*.—The roads are in charge of District Boards. Towards the maintenance of these roads the Government contribute from 1923-24 an amount not exceeding one half of the expenditure incurred on the roads subject to a maximum fixed for each district. One half of the cost of capital works on these roads is provided by Government if money is available.

*Other district roads*.—These are in charge of District Boards and are financed by them entirely.

*Taluk roads*.—These are in charge of taluk boards and are financed by them. The Government is however giving half grants for the development of village roads as funds permit.

1. (vii). Please see APPENDIX III.

Year.	Class of roads.	Mileage.	Number of miles per		
			100 square miles.	100,000 of total population.	100,000 of rural population.
1925-26	Metalled . . . .	20,275	16.6	48.5	53.7
	Unmetalled . . . .	8,100	6.6	19.4	21.4

3. (a) (i) and (b) (i) and (ii).—

Year.	Total expenditure on roads from provincial revenue (Rs. lakhs.)			Total provincial revenue (Rs. lakhs.).	Percentage of Column (4) to Column (5).	Incidence per head of	
	Direct by P. W. D.	Through District Boards.	Total.			Total population.	Rural population.
1	2	3	4	5	6	7	8
						Rs. a. p.	Rs. a. p.
1924-25 .	6.13	33.94 (a)	40.07	1,627.59	2.46	0 1 6	0 1 8
1925-26 .	7.65	39.94 (b)	47.59	1,693.59	1.81	0 1 10	0 2 0
1926-27 .	8.87	36.28	45.15	1,683.69	2.68	0 1 8	0 1 11

(a) (ii) and (b) (iii).—

Year.	Total expenditure on roads from local funds. (Rs. lakhs.).	Total local fund revenue, (Rs. lakhs.).	Percentage of Column (2) to Column (3).	Incidence per head of rural population of all road expenditure from local funds.
1	2	3	4	5
				Rs. a. p.
1924-25 .	56.95	167.67	33.9	0 2 5
1925-26 .	68.09	183.91	37.0	0 2 11
1926-27 .	78.36	203.80	38.4	0 3 4

(a) Includes Rs. 4.59 intended for village roads.

(b) Includes Rs. 1.17 intended for village roads.

4. No statistics are maintained.

5. Within the province the Government is in a position to insist on trunk and second class roads being maintained to a suitable standard by means of its inspecting officers on whose reports Government grants are paid. Trunk roads are inspected by Superintending Engineers of the Public Works Department and second class roads by District Collectors. The question of co-ordination with other provinces has not arisen. Road questions affecting French Territory or Indian States are settled by correspondence with the authorities concerned.

6. Please see the reply to question No. 7 below.

7. (a) All existing trunk and second class roads are generally able to carry motor transport as far as the surface is concerned. The chief difficulty is river crossings. The provision of such crossings in the form of causeways or bridges is necessary at the same time as an improvement of the standard of surface maintenance. The maximum load requires to be raised on some roads. The need for development of new roads is generally in the direction of feeder roads to trunk and second class roads. The rate of development in all directions should be as rapid as available funds allow.

(b) The necessary development can only be financed by means of additional taxation in some form.

(c) The construction of roads is now generally financed by loans (except in the case of village roads). Bridges on trunk roads are financed entirely by grants from provincial revenue and those on second class roads half by grant and half from local funds. The local fund half is often provided by taking a loan. It will accelerate the programme if the Government grants can be increased by some of them being made from money borrowed on part of the proceeds of the additional taxation referred to above, *i.e.*, by capitalising part of the proceeds.

8. Railway stations are connected with the road system and the provision of more feeders to this system is likely to increase railway traffic. The improvement of motorable roads is likely to affect short distance passenger traffic and goods traffic to some extent. It will be long before long distance railway traffic—more than 200 miles, say—is likely to be affected. No official machinery exists at present to co-ordinate road and railway development. It is doubtful if any steps are desirable to limit progress in the direction of one form of transport for the sake of the other. The most that may be desirable is consultation by the two authorities concerned in case of proposals for new development of main roads.

9. (a) Practically no use is made; under the present system little is likely to be made.

(b) (i) and (ii). *Nil*.

(c) *Nil*.

(d) Yes.



## B.—MOTOR TRANSPORT AND MOTOR TAXATION.

1. The following statement gives the number of motor vehicles registered in this Presidency in 1913-14 and from 1923-24 to 1926-27 :—

Class of vehicles.	1913-14.	1923-24.	1924-25.	1925-26.	1926-27.
Private cars . . . . .	243	819	879	1,272	1,567
Buses . . . . .	3	290	479	1,017	1,362
Taxis . . . . .	7	158	197	311	320
Commercial goods vehicles .	51	45	41	54	174
Motor cycles including cycles and side-cars.	296	179	189	237	273

NOTE.— Information regarding the principal bus services is attached (APPENDIX IV).

2. Development is likely to continue.

3. Excluding registration fees, driving license fees, and public vehicle license fees, taxation on motor transport consists of—

(a) Customs duty on cars and excise on petrol.

(b) Half-annual vehicle tax imposed by municipalities on motor vehicles kept in them.

(c) Tolls.

The municipal tax varies from Rs. 50 and Rs. 70 a year on touring cars to Rs. 200 and Rs. 400 on commercial vehicles. The lower figures are for mofussil towns and the higher for Madras. Motor cycles pay from Rs. 20 to Rs. 30 and two seats Rs. 40 to Rs. 50. The demand is rupees 6 or 7 lakhs in Madras and 2 or 3 lakhs in the mofussil. Tolls are levied at frequent intervals on roads and at all municipal limits. Motors pay some 7 lakhs annually in tolls to local boards and probably a lakh or two to municipalities. Licence fees charged by District Boards on public vehicles have increased in the last three years from 3 lakhs to 6.15.

4. Provincial taxation not at all. Local taxation goes to general revenues of the local bodies who are responsible for upkeep of roads with the help of Government grants.

5. Provincial fees for registration and driving licence are required for registering and licensing establishment. There is no other provincial taxation. Central taxation is at present imposed in the form of customs duty on cars and excise on petrol.

Local taxation in Madras is in the form of vehicle tax, fees for public vehicles, and tolls. The vehicle tax is a tax on property and may go to the general revenues of the body imposing it, while customs duty and excise stand in much the same relation to central revenues. It would be reasonable, however, if some portion of these particular taxes were allocated to expenditure on roads and probably it would be advan-



tageous—the improvement of roads reacting on the importation of cars and use of petrol. Tolls and license fees on public vehicles should be allocated entirely to roads after deducting cost of collection and registration.

6. (a) *Central*.—Customs duty and excise on petrol.

(b) *Provincial*.—Petrol excise to be collected and paid back to provinces by Central Government.

(c) *Local*.—Licence fees on public vehicles. Tolls, for motor vehicles at any rate, should be abolished and local bodies compensated for them and for vehicle tax, from the proceeds of the provincial share of petrol excise.

7. The suggestion is a good one.

The distribution should not, however, be entirely on provincial consumption of petrol. The factors of area and population and road mileage should also operate.

8. (a) *Ad valorem*.

(b) Registration fees may continue as at present to be according to the class of vehicle—cycles, cars, commercial vehicles.

The annual vehicle tax now imposed by local bodies may be replaced by a petrol tax to be credited to the province in which it is collected.

9. Customs duty is limited by the ordinary considerations which apply to such duty. The same considerations apply to the rate of a petrol tax or excise. Other taxation by any authority should be subject to a maximum.

10. Excluding registration and driving licence fees and licence fees for public vehicles, it is desirable that other taxation should be imposed by a single authority.

This may be either provincial or local in the case of an annual vehicle tax. If a petrol tax is substituted this must be provincial.

Vehicle tax is at present local, and to make it provincial or to substitute compensation from a petrol tax, the Acts concerned would have to be amended.

11. Please see the answer to question No. B. 5. A separate provincial road fund should be formed of the amount allocated to road expenditure.

12. Add the following proviso to Rule 6 (b) of Part II of Schedule I of the Devolution Rules :—

“ Provided that it shall be competent to the Central Government to contribute to provincial revenues for expenditure by the province on roads classified as being of all-India importance.”

13. (a) Block grants, to be spent on provincial trunk roads.

(b) Please see answer to question No. B. 7.

The block grants from central revenues should be determined by the following factors—population, area (possibly cultivated area only),

surfaced road mileage and petrol consumption. Population and cultivated area are likely to vary together, as are mileage and petrol consumption. So that the factors may perhaps be reduced to two—population and mileage.

14. A general vehicle tax on vehicles other than motor vehicles may well be substituted for tolls. The collection should be provincial for non-municipal areas. The tax should be credited to the local authorities concerned.

15. In this province no road cess is levied. A land cess is however levied on the annual rent value of all occupied lands on whatever tenure held. It *shall* comprise (a) a tax for general purposes of one anna in the rupee of the annual rent value of all occupied lands in the district, and *may* comprise (b) (i) a tax for District Board purposes alone of not more than three pies in the rupee of the annual rental value of such lands in the district and (ii) a tax for the purposes of a taluk board alone of not more than three pies in the rupee of the annual rent value of such lands in the taluk. The proceeds of the tax levied under clause, (a) in a taluk is shared equally between the taluk board concerned and the District Board. The total income from land cess during the three years ending 1925-26 was—

	Rs.
1923-24 . . . . .	85,32,095
1924-25 . . . . .	80,01,142
1925-26 . . . . .	85,24,855

No portion of the land cess is earmarked for expenditure on roads.

By way of tolls on roads District Boards derive an income of about Rs. 30 lakhs. The whole of this money is generally spent on roads but there is no statutory restriction in this regard.

### C.—ROAD BOARDS.

1. Yes. In 1921. Its strength is 17, consisting of 7 Presidents of District Boards; 4 Representatives of the South Indian Motor Union, Madras Chamber of Commerce, Southern Indian Chamber of Commerce, and The Madras Trades Association; Commanding Royal Engineer, Madras District; the Director of Town Planning; the Director of Industries; the Chief Engineer, Public Works Department (Roads and Buildings); the Secretary, Local Self-Government Department; and the Secretary, Public Works and Labour Department.

The Secretary, Local Self-Government Department, is the Secretary to the Road Board and the Secretary, Public Works and Labour Department, the President.

The functions of the Road Board are to advise the Government in the form of recommendations on all problems relating to the extension and classification of roads and other questions touching on their improvement.

2. (a). If revenue from central taxation is distributed by block grants determined by ascertained factors as proposed, no central authority for distribution is necessary.

(b) and (c). A Central Board with purely advisory powers may be constituted for these purposes.

(d). A central authority for research and to co-ordinate technical experience is desirable.

3. Its functions should be as given under the preceding question.

It should consist of representatives—official and non-official—of the provinces, of officials of the central departments of Finance, Commerce and Industries, and an official expert or experts in charge of research work.

4. The necessary co-ordination could be as well or better obtained by the Central Government.

# APPENDIX I.

(Vide question No. A-1 (i) and (vi) of the questionnaire.)

Year.	Mileage of roads (classes).				Total mileage of roads (type).		Total expenditure on			
	Local fund.				Metalled.	Unmetalled.	Construction.		Maintenance.	
	Provincial (P. W. D.)	Trunk.	Second class.	Other district and taluk roads.			From provincial funds.	From local funds.	From provincial funds.	From local funds.
Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Direct by P. W. D. Rs. (lakhs.)	Through District Boards Rs. (lakhs.)	Direct by P. W. D. Rs. (lakhs.)	Through District Boards Rs. (lakhs.)	
1913-14 . . . . .	771		25,817*	26,588	22,544	4,044	2.41	17.53	2.19	47.58
1923-24 . . . . .	1,066	3,037	12,163	10,682	20,142	6,806	0.83	3.64	5.46	39.15
1924-25 . . . . .	1,055	3,037	12,325	10,740	19,594	7,602	1.31	2.55	4.82	31.39
1925-26 . . . . .	1,096	3,037	12,340	11,902	20,275	8,100	1.72	5.80	5.93	34.14

\*There was no classification as trunk or second class in 1913-14.

## APPENDIX II.

(Vide question No. A-1 (iii) of the questionnaire.)

Unbridged crossings on trunk roads, bridges at which are estimated to cost Rs. 25,000 and over.

Serial No.	Trunk road.	District.	Mileage and name of river or stream.	Approximate cost.
				Rs.
1	Great Northern Trunk Road.	Nellore . . .	33-7 . . . . .	33,000
2	Ditto . . .	Ditto . . . . .	47-7-8 . . . . .	84,000
3	Ditto . . .	Ditto . . . . .	69-2 Swarnamukhi . . . . .	7,66,000
4	Ditto . . .	Ditto . . . . .	70-5 . . . . .	36,000
5	Ditto . . .	Ditto . . . . .	84-8 to 88-3 . . . . .	3,65,000
6	Ditto . . .	Ditto . . . . .	92-8 . . . . .	25,000
7	Ditto . . .	Ditto . . . . .	109-1 Pennar . . . . .	8,00,000
8	Ditto . . .	Ditto . . . . .	158-5 . . . . .	50,000
9	Ditto . . .	Ditto . . . . .	161-1 Manneru . . . . .	1,00,000
10	Ditto . . .	Ditto . . . . .	169-1 Paleru . . . . .	4,00,000
11	Ditto . . .	Guntur . . . . .	172-5 Musi . . . . .	3,75,000
12	Ditto . . .	Ditto . . . . .	191-2 Gundlakamma . . . . .	3,00,000
13	Ditto . . .	Ditto . . . . .	Ogeru . . . . .	80,000
14	Ditto . . .	Ditto . . . . .	Kuppaganji . . . . .	45,000
15	Ditto . . .	Ditto . . . . .	Nakkavagu . . . . .	78,000
16	Ditto . . .	Kistna . . . . .	298-1 Ramileru . . . . .	72,000
17	Ditto . . .	West Godavari . . . . .	302-1 Joolavagu . . . . .	40,320
18	Ditto . . .	Ditto . . . . .	305-2 Jammulavagu . . . . .	28,350
19	Ditto . . .	Ditto . . . . .	338-3 Yerra Calva . . . . .	1,85,000
20	Ditto . . .	Ditto . . . . .	353-7-8 Ralla Madugu . . . . .	81,000
21	Ditto . . .	Ditto . . . . .	West Tammileru . . . . .	54,180
22	Ditto . . .	Vizagapatam . . . . .	88-5 Nathavaiasa . . . . .	3,59,500
23	Ditto . . .	Ditto . . . . .	96-3 Kandivalasa . . . . .	2,00,650
24	Ditto . . .	Ditto . . . . .	108-7 Budumuru . . . . .	1,40,000
25	Ditto . . .	Ganjam . . . . .	9 Vamsadhara . . . . .	5,25,000

Serial No.	Trunk road.	District.	Mileage and name of river or stream	Approximate cost.
				Rs.
26	Great Northern Trunk Road.	Ganjam . .	4 Gulimigedda . .	28,500
27	Ditto .	Ditto . .	15 Rushikulya . .	11,00,000
28	Great Southern Trunk Road.	Chingleput .	38-5-7 Palar . .	4,50,000
29	Ditto .	South Arcot .	64-1-2 Ongur . .	36,000
30	Ditto .	Ditto . .	104-2-4 Pennar . .	1,00,000
31	Ditto .	Ditto . .	113-1-2 Gadilam . .	80,000
32	Ditto .	Trichinopoly .	153-4 Chinnar . .	45,000
33	Ditto .	Ditto . .	215-7-8 Manapparai Chittanatham.	1,00,000
34	Ditto .	Ditto . .	226-3-4 Manapparai Dombachi.	75,500
35	Ditto .	Ditto . .	239-5-6 . .	40,000
36	Ditto .	Madura . .	255-3 Mullipadi . .	81,000
37	Madras-Bombay Road.	Chittoor . .	176-3 Chinna Yeru .	45,000
38	Ditto .	Ditto . .	178-4 Pedda Yeru .	75,000
39	Ditto .	Anantapur .	186-7 Papagni . .	47,000
40	Ditto .	Ditto . .	237-2-4 Chitravati .	2,38,000
41	Ditto .	Ditto . .	284-7 Pennar . .	1,23,000
42	Madras-Calicut Road.	Coimbatore .	326 Sangannur Pallam	52,500
43	Ditto .	Ditto . .	332 Kuniyamuthur Pallam.	48,000
44	Ditto .	Ditto . .	340 Navakarai Pallam	48,000
45	Chittoor-Kurnool Road.	Chittoor . .	5-2 Muthireval . .	1,25,000
46	Ditto .	Ditto . .	37-1 Pinchanadi . .	75,000
47	Ditto .	Ditto . .	49-7 Bahuda . .	1,25,000
48	Ditto .	Ditto . .	53-4 Satyavati . .	45,000
49	Ditto .	Cuddapah . .	115-116 Vokkileru .	30,800
50	Ditto .	Kurnool . .	143-6 Bhavanasi . .	34,000
51	Ditto .	Ditto . .	147 Vokkileru . .	50,000

Serial No.	Trunk road.	District.	Mileage and name of river or stream.	Approximate cost.
				Rs.
52	Kurnool-Guntur Road.	Kurnool . . .	102-6 Ennmaleru . . .	25,000
53	Ditto . . .	Nellore . . .	19-6 Musi . . .	2,00,000
54	Masnlipatam-Hyderabad Road.	Kistna . . .	68-2-4 Kesara Muniyeru	6,80,000
55	Ditto . . .	Ditto . . .	93-3-4 Paleru . . .	75,000
56	Kurnool-Bangalore Road.	Anantapur . . .	71-2-7 Pennar . . .	4,75,000
57	Ditto . . .	Ditto . . .	152-3 Kushavati . . .	45,000
58	Chittoor-Cuddalore Road.	North Arcot . . .	23-4 Padavedu . . .	25,000
59	Ditto . . .	Ditto . . .	40 Cheyyar . . .	80,000
60	Ditto . . .	South Arcot . . .	46 Thuriyalur . . .	70,000
61	Coimbatore-Ootacamund Road.	Coimbatore . . .	3 Sangapur Pallam	64,800
62	Ditto . . .	Ditto . . .	11 Kuridimalai Pallam	32,400
63	Hospet-Mysore Frontier Road.	Bellary . . .	382-7 Chikka Hagari . . .	1,44,000
64	Ditto . . .	Ditto . . .	387-7 Velluvati Vanka . . .	56,700
65	Ditto . . .	Ditto . . .	388-3 Regadi Vanka . . .	27,000
66	Ditto . . .	Ditto . . .	390-7 Uppi Vagu . . .	57,600
67	Ditto . . .	Ditto . . .	393 Ittizi Vanka . . .	43,200
68	Ditto . . .	Ditto . . .	396 Nandileru Vanka . . .	36,000
69	Ditto . . .	Ditto . . .	420-6 Teligi Vanka . . .	32,400
70	Ditto . . .	Ditto . . .	421-7 Unisi Vanka . . .	25,200
71	Ditto . . .	Ditto . . .	424-3 Diggavati . . .	72,000
72	Vizianagram—Central Provinces Road.	Vizagapatam . . .	44-4 Seethanagaram Swarnamukhi.	2,26,500
73	Ditto . . .	Ditto . . .	Paradi . . .	2,27,750
74	Ramaclandrapuram Central Provinces Road.	Ditto . . .	5 Salur . . .	1,95,575
75	Ditto . . .	Ditto . . .	6-4 Kotakki . . .	1,40,300
76	Coimbatore-Satyamangalam-Hassanur-Mysore Frontier Road.	Ditto . . .	3 Sangapur Pallam	48,000
77	Ditto . . .	Ditto . . .	63 Hasanur Pallam . . .	28,000
				1,16,52,925

# APPENDIX III. (Form referred to at A-1 (vi) of the questionnaire.)

MADRAS PRESIDENCY.

Detail of expenditure on road maintenance in 1926-27.  
construction

Class.	Mileage to nearest ten.			Provincial expenditure. Rs. 1000's.			Local fund expenditure Rs. 1000's.			Total expenditure Rs. 1000's.	
	Surfaced. 2	Un- surfaced. 3	Total. 4	Surfaced. 5	Un- surfaced. 6	Total. 7	Surfaced. 8	Un- surfaced. 9	Total. 10	Surfaced. 11	Un- surfaced. 12
1. Provincial roads . . .	550	530	1,080	523 245	35 83	558 32	...	...	...	523 (951) 245	35 (66) 83
2. Trunk roads . . .	3,040	...	3,040	1,310 240	...	1,310 240	431 74	...	431 74	1,741 (573) 314	...
3. Second class roads . . .	12,680	...	12,680	1,468 134	...	1,468 134	3,548 1,193	...	3,548 1,193*	5,016 (396) 1,327	...
4. Other district roads . . .	5,175	2,758	7,933	2 9	9 80	11 89	822 182	237 329†	1,059 511	824 (159) 190	246 (89) 409
Total . . .	21,445	3,288	24,733	3,303 628	44 163	3,347 791	4,801 1,449	237 329	5,038 1,778	8,104 (378) 2,077	281 (85) 492

\* Includes Rs. 277,000 from loan funds.  
 † Includes Rs. 5,000 from loan funds.  
 NOTE.—(i) This statement does not include statistics relating to taluk board roads which are maintained by taluk boards from their own funds.  
 (ii) The average cost per mile of construction of a district road in 1925-26 was Rs. 5,676 (statistics for 1926-27 are not available.)



## APPENDIX IV.

(Vide question B-1 of the questionnaire.)

List of principal bus services in the Madras Presidency.

No.	District.	Principal bus services.	Mileage.
1	Anantapur . .	Pamidi-Gooty . . . . .	12
2		Pamidi-Dhone . . . . .	20
3		Anantapur-Uravakonda . . . . .	32
4		Pavagoda-Pennukonda . . . . .	20
5		Guntakal-Uravakonda . . . . .	21
6		Hindupur-Madakasira . . . . .	21
7		Anantapur-Kalyandrug . . . . .	36
8		Kadiri to Muddanur Road limit . . . . .	20
9		Anantapur to Tadpatri . . . . .	32
10		Uravakonda to district limit . . . . .	8
		Throughout the district—	
11		Madakasira-Amorapuram . . . . .	24
12		Maddigiri-Pavagoda . . . . .	9
13		Chandrabhaki to Amidalagonda . . . . .	9
14		Penukonda to Kodikonda . . . . .	25
15		Kalyandrug to Rayadrug side district limit . . . . .	20
16		Kadiri-Muddanur Road . . . . .	20
17		Kadiri-district limit Madanapalle side . . . . .	20
1	North Arcot . .	From Vellore to Arni . . . . .	22
2		From Vellore to Vettuvanam . . . . .	14
3		From Vellore to Virinchipuram . . . . .	7
4		From Vellore to Adugathur . . . . .	22½
5		From Vellore to Katpadi . . . . .	2½
6		From Adugathur to Arcot . . . . .	36

No.	District.	Principal bus services.	Mileage.
7	North Arcot— <i>contd.</i>	From Vellore to Wandiwash ( <i>via</i> Arni) .	49
8		From Vellore to Wandiwash ( <i>via</i> Arcot and Tiruvallur).	51½
9		From Vellore to Thindivanam . . .	64
10		From Vellore to Palliconda . . .	13
11		From Vellore to Ambur . . .	30
12		From Ambur to Ranipet . . .	46
13		From Vellore to Tiruvallur . . .	39
14		From Vellore to Conjeeveram . . .	31
15		From Vellore to Kalavai . . .	26½
16		From Vellore to Ranipet . . .	16
17		From Katpadi to Ranipet . . .	18½
18		From Vellore to Santhavasal . . .	22
19		From Vellore to Arcot . . .	14
20		From Katpadi to Gudiyatham . . .	18
21		From Katpadi to Chittoor . . .	4½
22		From Arcot to Arni . . .	17
23		From Arcot to Walaja Road . . .	5½
24		From Arcot to Illuppai . . .	19
25		From Arcot to Kalavai . . .	12½
26		From Arcot to Ranipet . . .	2
27		From Arcot to Walaja . . .	3½
28		From Arcot to Visharam . . .	3½
29		From Arcot to Conjeeveram ( <i>via</i> Kovanpauk)	17½
30		From Arcot to Conjeeveram ( <i>via</i> Angathur)	29½
31		From Arcot to Manapakkam . . .	16½
32		From Conjeeveram to Moranam . . .	17
33		From Arni to Arni Railway Station . . .	6½
34		From Arni to Tiruvathur . . .	21
35		From Arni to Walaja Road . . .	22½

No.	District.	Principal bus services.	Mileage.
36	North Arcot— <i>contd.</i>	From Arni to Wandiwash . . . .	27
37		From Arni railway station to Polur . .	10 $\frac{1}{4}$
38		From Santhavasal to Kalambur . .	4 $\frac{1}{2}$
39		From Arni to Perumanallur . . . .	16
40		From Arni to Desur . . . .	28
41		From Desur to Katteri . . . .	11
42		From Ranipet to Arni . . . .	19
43		From Kalavai Road Junction to Kalavai .	2 $\frac{1}{2}$
44		From Kalavai to Valapandal . . . .	10
45		From Ranipet to Valapanda . . . .	24 $\frac{1}{2}$
46		From Kalavai to Tiruvathur . . . .	15
47		From Arcot to Kavanipauk . . . .	11
48		From Sholinghur to Sholinghur railway station.	9 $\frac{1}{2}$
49		From Banavaram to Kavanipauk . . .	9
50		From Sholinghur to Arkonam . . . .	17 $\frac{1}{2}$
51		From Sholinghur to Walaja Road . . .	12
52		From Sholinghur to Arcot . . . .	17 $\frac{1}{2}$
53		From Sholinghur to Arni . . . .	34
54		From Sholinghur to Ranipet . . . .	14 $\frac{1}{2}$
55		From Arkonam to Panapakkam . . . .	15
56		From Arkonam to Nagavedu . . . .	5
57		From Arkonam to Kavanipauk . . . .	24
58		From Conjeeveram to Tiruvettipuram .	15
59		From Conjeeveram to Arcot . . . .	40
60		From Conjeeveram to Wandiwash . . .	18
61		From Chingleput to Wandiwash . . . .	9
62		From Wandiwash to Salavelu . . . .	9 $\frac{1}{4}$
63		From Salavedu to Arni . . . .	37
64		From Wandiwash to Thellar . . . .	14

No.	District.	Principal bus services.	Mileage.
65	North Arcot— <i>contd.</i>	From Chetpet to Arni . . . .	15½
66		From Chetpet to Polur . . . .	17
67		From Ranipet to Chetpet . . . .	34½
68		From Ranipet to Wandiwash . . . .	46
69		From T. Malai to Pennathur . . . .	11
70		From Pennathur to Avalurpet . . . .	7
71		From T. Malai to Mekkalore . . . .	15
72		From T. Malai to Chengam . . . .	18½
73		From T. Malai to Anandavadai . . . .	29
74		From T. Malai to Tirupathur . . . .	59
75		From T. Malai to Thandrampet . . . .	10
76		From T. Malai to Ulagalapadi . . . .	14
77		From Gudiyatham to Gudiyatham railway station. . . .	2½
78		From Gudiyatham to Tirupathur . . . .	43
79		From Gudiyatham to Vaniyambadi . . . .	30
80		From Gudiyatham to Chittoor . . . .	7
81		From Vaniyambadi to Alangayam . . . .	9½
82		From Tirupathur to Vaniyambadi . . . .	12
83		From Tirupathur to Alangayam . . . .	17
84		From Tirupathur to Perambat . . . .	5
85		From Kuppam to Palavaneri . . . .	16½
86		From Gudiyatham to Lynagunta . . . .	11
87		From Arcot to Tiruvathur . . . .	25
88		From T. Malai to Vettavalam . . . .	14
89		From Chengam to Tirupathur . . . .	22
90		From Gudiyatham to Pernambat . . . .	10
91		From Pernambat to Mailpatti . . . .	8
92		From Polur to Kadaladi . . . .	16
93		From Tirupathur to Singanapet . . . .	9

No.	District.	Principal bus services.	Mileage.
94	North Arcot— <i>concl'd.</i>	From T. Malai to Melchengam . . .	30
95		From Desur to Vellimedupettai . . .	11
96		From Arkonam to Tiruttani . . .	5½
97		From Conjeeveram to Kulamanthal . . .	7
1	Arcot South . . .	Cuddalore and Pondicherry . . .	8½
2		Cuddalore and Kurinjipadi . . .	20
3		Cuddalore and Vriddhachalam . . .	38
4		Cuddalore and Tittagudi . . .	57
5		Cuddalore and Tindivanam . . .	44
6		Tindivanam and Gingee . . .	17
7		Tindivanam and Pennathur . . .	29
8		Tindivanam and Merkanam . . .	22
9		Tindivanam and Pondicherry . . .	26
10		Tindivanam and Vellimedupettai . . .	12
11		Gingee and Pennathur . . .	13
12		Tirukkoyilur Ry. station and Kallakurchi . . .	30
13		Tirukkoyilur Ry. station and Royappanur . . .	44
14		Ulundurpet and Tirukkoyilur <i>via</i> Elavanasur.	28
15		Kallakurchi and Royappanur . . .	14
16		Tyagadurg and Royappanur . . .	23
17		Panruti and Mangalampet <i>via</i> Ulundurpet.	20
18		Panruti and Kallakurchi <i>via</i> Ulundurpet and Mangalampet.	47
19		Porto Novo and Tittagudi . . .	49
20		Vriddhachalam and Tittagudi . . .	20
21		Chidambaram and Mannargudi . . .	15
22		Chidambaram and Vriddhachalam <i>via</i> Shetiatope.	32
23		Mannargudi and Vriddhachalam <i>via</i> Chidambaram and Shetiatope.	44½

No.	District.	Principal bus services.	Mileage.
24	Arcot South — <i>concl'd.</i>	Villupuram and Gingee . . . .	23½
25		Chidambaram and Kumaratchi . . . .	10½
26		Chidambaram and Srimushnam <i>via</i> Shetiatope.	26
27		Chidambaram and Vriddhachalam <i>via</i> Shetiatope and Srimushnam.	44
28		Gingee and Chetput . . . .	16
29		Tirukkoyilur and Manalurpet . . . .	9
30		Panruti and Tirukkoyilur <i>via</i> Tirunamanalur, Tiruvannanallur Periasavalai.	38
31		Tyagadurg and Gadilam <i>via</i> Elavanasur Ulundurpet and Mangalampet.	27
32		Panruti and Gadilam . . . .	12
33		Alapakkam and Kurinjipadi . . . .	12
34		Tirukkoyilur and district limit <i>via</i> Manalurpet and Road No. 20-I.	13
35		Extension of the route Pennathur to North Arcot district limit as far as Avalurpet in the South Arcot district limit.	2
36		Mangalampet and Gadilam <i>via</i> Ulundurpet .	12
37		Tirukkoyilur and Tyagadurg . . . .	19
		Throughout the District . . . .	...
1	Bellary . . . .	Bellary to Hospet <i>via</i> Kampli . . . .	50
2		Adoni to Yemmiganur . . . .	18
3		Thalavaraghatta to Huvinahadagalli <i>via</i> Hospet Narayanadevarakeri and Hampasagar.	48
4		Kowtalam to Adoni <i>via</i> Kuppagal . . . .	17
5		Harpanahalli to Hagari-Bommanahalli .	24
6		Bellary to Yethinahatti . . . .	25
7		Bellary to the limits of Madras-Bombay Road (E. P.)	16
8		Bellary to Rayadrug <i>via</i> Kanekal . . . .	50
9		Harpanahalli to Hospet <i>via</i> Hagaribommanahalli	45
10		Adoni to Nandavaram <i>via</i> Yemmiganur .	25
11		Adoni to Siruguppa . . . .	25

No.	District.	Principal bus services.	Mileage.
12	Bellary— <i>contd.</i>	Hospet to Hirehadagalli <i>via</i> Narayanadevarakeri and Tambrahalli.	47
13		Moka to Siruguppa <i>via</i> Bellary . . . . .	46
14		Kammarchedu to Sirigeri <i>via</i> Moka and Kurugodu.	50
15		Aspari railway station to Yerragudi <i>via</i> Alur.	25
16		Harpanahalli to Kanivihalli <i>via</i> Kottur and Kudligi.	42
17		Harpanahalli to Duggavathi . . . . .	16
18		Hospet to Duggavathi <i>via</i> Harpanahalli .	61
19		Uddihal to Siruguppa . . . . .	50
20		Kampli to Hospet . . . . .	18
21		Hospet to Duggavathi <i>via</i> Kudligi, Ujjini, Kottur and Harpanahalli.	75
22		Talavaraghatta to Narayanadevarakeri <i>via</i> Kamalapur and Hampi.	23
23		Rayadrug to the limits of Rayadrug Molakalmuruvu Road.	4
24		Bellary to Hampi <i>via</i> Hospet . . . . .	47
25		Rayadrug to Bellary (District Board limits) <i>via</i> Molakalmuruvu.	19
26		Harpanahalli to Mallanaberi <i>via</i> Hadagalli	...
27		Bellary to Siruguppa <i>via</i> Sirigeri . . . . .	40
28		Uddihal to Kampli <i>via</i> Bellary . . . . .	46
29		Alur to Guntakal . . . . .	18
30		Adoni to Aspari limits . . . . .	16
31		Talavaraghatta to Harpanahalli <i>via</i> Hospet, Narayanadevarakeri, Hampasagar and Hadagalli.	64
32		Adoni to Bellary <i>via</i> Alur . . . . .	43
33		Bellary to Sirigeri . . . . .	24
34		Duggavathi to Kudligi <i>via</i> Harpanahalli and Kottur.	46
35		Bellary to Harpanahalli <i>via</i> Hospet, Kudligi and Kottur.	90

No.	District.	Principal bus services.	Mileage.
36	Bellary— <i>concl'd.</i>	Kanekal to Sanavasapur <i>via</i> Bellary . . .	46
37		Hagaribommanahalli to Hadagalli . . .	24
38		Kampli to Harpanahalli <i>via</i> Hampi, Hospet and Kudligi.	75
1	Chingleput (Saidapet)	Madras to Poonamalle . . . . .	9
2		Ditto . . . . .	8½
3		Madras to Lattice Bridge . . . . .	2
4		Madras-Tirukkalikundram . . . . .	40
5		Chingleput to Tirukkalikundram . . . . .	9½
6		Chingleput to Tirukkalikundram and Mahabalipuram.	19½
7		Avadi to Poonamalle and Sriperambadur . . . . .	17
8		Avadi to Tiruvallur <i>via</i> Tirumuzhi . . . . .	23
9		Acharapakkam to Wandiwash . . . . .	9½
10		Conjeeveram to Tiruvettipuram . . . . .	4
11		Ponneri-Periapalayam . . . . .	12
12		Tirukkalikundram-Mahabalipuram . . . . .	10
13		Tirukkalikundram to Madras . . . . .	9
14		Chingleput-Uttiramerur . . . . .	18
15		Madras to Tiruvothiyur . . . . .	1
16		Madurantakam to Cheyyur . . . . .	18
17		Kattipara to Madras . . . . .	7½
18		Conjeeveram to Walaja . . . . .	10
19		Kavarapet to Sathiavedu . . . . .	14
20		Conjeeveram to Wandiwash . . . . .	4
21		Madurantakam to Chunampet . . . . .	17½
22		Tiruvallur to Nagalapuram . . . . .	25
23		Uttukottai to Ponneri . . . . .	22
24		Nagalapuram to Madras . . . . .	41
25		Kavarapet to Madirpakkam . . . . .	15



No.	District.	Principal bus services.	Mileage.
26	Chingleput (Saidapet) — <i>contd.</i>	Pennalurpet to Tiruvallur and Damarapak- kam.	26
27		Damarapak to Periyapalayam . . . .	6
28		Uttukottai to Madras . . . .	31
29		Sriperumbudur to Conjeeveram . . . .	21
30		Uttukottai to Madras <i>via</i> Arni . . . .	39
31		Madras to Periyapalayam . . . .	21
32		Tada to Sathiavedu . . . .	
33		Madras to Arni . . . .	21
34		Tiruvallur to Sathiavedu . . . .	25
35		Madras to Conjeeveram . . . .	53
36		Madras to Chingleput . . . .	30½
37		Vandalur to Sriperumbudur . . . .	13
38		Sathiavedu to Madras <i>via</i> Tiruvallur . . . .	51
39		Tiruvallur-Sriperumbudur . . . .	13
40		Chingleput-Tirupporur . . . .	16
41		Nagalapuram-Puthur . . . .	2½
42		Sriperumbudur-Chingleput . . . .	20
43		Kunnathur-Pallavaram . . . .	5
44		Chingleput-Palur . . . .	3
45		Madras to Sriperumbudur . . . .	22
46		Kunnathur to Madras . . . .	12
47		Conjeeveram to Tiruvallur . . . .	46
48		Mount to Madras . . . .	4
49		Kunnathur to Madras <i>via</i> Kodambakkam . . . .	10
50		Madras to Medavakkam and Tambaram . . . .	15½
51		Vandalur to Tirupporur . . . .	18
52		Madras to Ennore . . . .	7½
53		Chingleput to Madurantakam . . . .	15
54		Pallavaram to Madras . . . .	8½
55		Amarambedu to Kunnathur and Pallavaram . . . .	12

No.	District.	Principal bus services.	Mileage.
56	Chingleput (Saidapet) —concl'd.	Sogandy to Walajabad and back <i>via</i> Sri-perumbudur.	31
57		Sogandy to Kadambathur . . . . .	13
58		Madras to Ponneri . . . . .	20
59		Keelambakkam to Pallavaram . . . . .	19
60		Kunnathur to Madras <i>via</i> Pallavaram . . . . .	13
61		Poonamalle to Tiruvallur . . . . .	18
62		Madras to Gummidipundi . . . . .	23
63		Tiruvallur to Puduchatram <i>via</i> Tirumushi . . . . .	14
64		Poonamalle to Keelacheri and Manner . . . . .	18
65		Tirupporur to Madras . . . . .	32½
66		Acharapakkam to Vannagupatta . . . . .	19
67		Madras to Tirunurmalai . . . . .	11½
68		Madras to Sathiavedu . . . . .	33½
69		Sriperumbudur to Conjeeveram <i>via</i> Thenneri . . . . .	23½
70		Madras to Conjeeveram <i>via</i> Paddappai . . . . .	43
71		Madras to Sriperumbudur <i>via</i> Kunnathur . . . . .	23
72		Saidapet to Madras . . . . .	1½
73		Pallur to Conjeeveram . . . . .	10
74		Madras to Madavaram . . . . .	4
75		Chingleput to Wandiwash . . . . .	26
76		Madras to Tiruvallur <i>via</i> Red Hills . . . . .	29
1	Chittoor . . . . .	Chittoor to Katpadi up to district limits . . . . .	14
2		Chittoor to Punganur <i>via</i> Palmaner . . . . .	43
3		Chittoor to Venkatagirikota up to district limits towards Kolar side. . . . .	52
4		Punganur to Madanapalle . . . . .	15
5		Madanapalle to Voyalpad . . . . .	13
6		Madanapalle to Angallu . . . . .	7
7		Angallu to Bathalapuram . . . . .	17
8		Bathalapuram village to Mulakalacheruvu railway station. . . . .	6

No.	District.	Principal bus services.	Mileage.
9	Chittoor— <i>contd.</i>	Mulakalacheruvu railway station to Peddatippasamudram.	8
10		Bathalapuram village to Kothakota . . .	8
11		Voyalpad to Kalikiri . . . . .	14
12		Madanapalle-Bangalore road up to district limits.	8
13		Rayachoti to Gurramkonda . . . . .	9
14		Gurramkonda to Angallu . . . . .	14
15		Gurramkonda to Voyalpad . . . . .	12
16		Madanapalle-Thambillapalle . . . . .	23
17		Palmaner to Bangalore up to district limits .	15
18		Chittoor to Damalcheruvu toll gate . . .	21
19		Damalcheruvu toll gate to Piler . . . . .	16
20		Kalakada to Piler <i>via</i> Piler toll gate (Kurnool Trunk Road).	22
21		Chittoor to Aragonda . . . . .	12
22		Chittoor to Sholinghur . . . . .	26
23		Sholinghur to Tiruttani . . . . .	17
24		Chittoor to Nagari <i>via</i> Palliput . . . . .	37
25		Puthalput Naidupet road up to Chendragiri .	24
26		Chendragiri to Renigunta . . . . .	14
27		Kalahasti railway station to Renigunta .	16
28		Kalahasti railway station to Kalahasti .	3
29		Kalahasti to Naidupet up to district limits .	13
30		Chittoor to Palmaner . . . . .	25
31		Venkatagirikot to Kuppan . . . . .	7
32		Palmaner to Venkatagirikota . . . . .	26
33		Palmaner to Ramassamudram . . . . .	28
34		Venkatagirikota to Mysore frontier . . .	2
35		Gurramkonda to Kalakada . . . . .	15
36		Kalikiri to Piler <i>via</i> Mahal . . . . .	14

No.	District.	Principal bus services.	Mileage.
37	Chittoor— <i>concl'd.</i>	Gurramkonda to Kalicherla . . . . .	10
38		Kalikiri to Piler . . . . .	10
39		Kandlamadugu to Peddatippasamudram via Kothakota.	18
40		Punganur to Ramasamudram . . . . .	10
41		Punganur to Kallur . . . . .	35
42		Kallur to Pulicerla railway station . . . . .	5
43		Royalpet to Palmaner . . . . .	10
44		Chittoor to Irala . . . . .	15
45		Chittoor to Gudiyatam . . . . .	14
46		Chittoor to Penumoor . . . . .	11
47		Chittoor to Avalkonda . . . . .	13
48		Nagari to Sholinghur via Palliput and Ramakrishnarajupet.	26
49		Cuddapah Trunk Road, Tiruttani to Arkonam up to district limits.	3
50		Nagari to Puttur . . . . .	9
51		Puttur to Karvetnagar . . . . .	7
52		Puttur to Nagalapuram . . . . .	14
53		Tiruttani to Kanakammachatram . . . . .	11
54		Palliput to Sholinghur . . . . .	16
55		Tirupati to Renigunta . . . . .	6
56		Tirupati to Chendragiri . . . . .	8
57		Madanapalle to Kurabalakota . . . . .	8
	Coimbatore . . . . .	Madras-Calicut Road—	
1		Bhavani-Chittodu . . . . .	4
2		Chittodu-Perundurai . . . . .	10
3		Perundurai-Chengapalli . . . . .	12
4		Chengapalli-Avanashi . . . . .	10
5		Avanashi-Karumathapatti . . . . .	10
6		Karumathampatti-Coimbatore . . . . .	15
7		Coimbatore-Walayar . . . . .	13

No.	District.	Principal bus services.	Mileage.
	Coimbatore— <i>contd.</i>	Trichinopoly-Coimbatore Road—	
8		District limit—Kangayam . . . .	15
9		Kangayam-Avanashipalayam . . . .	10
10		Avanashipalayam Palladam . . . .	10
11		Palladam-Galtonpet . . . .	8
12		Galtonpet-Coimbatore . . . .	12
13		Coimbatore-Ootacamund Road—	
14		Coimbatore-Perianaickenpalayam . . . .	10
15		Coimbatore-Koilpalayam . . . .	10
16		Koilpalayam-Annur . . . .	9
17		Annur-Puliamatti . . . .	9
18		Puliamatti-Satyamangalam . . . .	14
19		Satyamangalam-Bennari . . . .	9
20		Bennari district limit . . . .	15
		B Class or II Class roads—	
21		Coimbatore-Pollachi . . . .	22
22		Kandaigounensalai-Cochin frontier . . . .	5
23		Coimbatore-Iruttupallam . . . .	13
24		Noyyal Bridge to Chettipalayam . . . .	7
25		Pollachi-Palladam . . . .	29
26		Pollachi-Udamalpet . . . .	16
27		Pollachi-Meenkarai . . . .	12
28		Pollachi-Palghat . . . .	8
29		Udamalpet-Tiruppur <i>via</i> Palladam—	
30		Udamalpet-Periapatti . . . .	15
31		Periapatti-Mandripalayam . . . .	8
32		Mandripalayam-Palladam . . . .	7
33		Palladam-Tiruppur . . . .	7
34		Udamalpet-Dharapuram . . . .	22
35		Komaralingam-Madathukolam and thence to Karatholuvu.	10

No.	District.	Principal bus services.	Mileage.
36	Coimbatore— <i>contd.</i>	Udamalapet-Madathukolam . . .	9
37		Udamalapet-Komaralingam . . .	12
38		Udamalapet-Tirumurthi Hills . . .	10
39		Dharapuram-Tiruppur—	
40		Dharapuram Avanashipalayam . . .	17
41		Avanashipalayam-Tiruppur . . .	10
42		Dharapuram to Chinnadharapuram via Mulanur.	21
43		Dharapuram to Palni . . . . .	9
44		Palladam-Dharapuram . . . . .	19
45		Tiruppur-Mettupalayam via Avanashi—	
46		Tiruppur-Avanashi . . . . .	6
47		Avanashi-Annur . . . . .	11
48		Annur-Mettupalayam . . . . .	12
49		Tiruppur to Kunnathur via Perumanallur—	
50		Tiruppur-Perumanallur. Perumanallur-Kun- nathur.	12
51		Tiruppur to Padiyur . . . . .	9
52		Mangalam-Avanashi . . . . .	5
53		Avanashi-Puliampatti . . . . .	13
54		Erode-Karur via Malayampalayam . . .	26
55		Erode to Muthur . . . . .	20
56		Erode-Kangayam via Palayakottai . . .	27
57		Erode-Perandurai . . . . .	11
58		Erode-Satyamangalam via Gobichettipala- yam —	
59		Erode-Chittodu . . . . .	5
60		Chittodu-Kavundapadi . . . . .	8
61		Kavundapadi-Gobichettipalayam . . .	9
62		Gobichettipalayam-Satyamangalam . . .	16
63		Erode to Bhavani . . . . .	6
64		Perundurai market to Chennimalai market via Perundurai railway station.	10

No.	District.	Principal bus services.	Mileage.
65	Coimbatore— <i>contd.</i>	Perundurai-Kangayam <i>via</i> Chennimalai—	
66		Perundurai-Chennimalai . . . . .	10
67		Chennimalai-Kangayam . . . . .	10
68		Bhavani to Kavundapadi . . . . .	8
69		Bhavani to Chellampalayam <i>via</i> Andiyur .	15
70		Andiyur to Ammapet . . . . .	11
71		Gobichettipalayam-Dharapuram <i>via</i> Uthukuli, Padiyur and Kangayam.	...
72		Gobi-Kunnathur . . . . .	13
73		Kunnathur-Uthukuli . . . . .	9
74		Uthukuli-Padiyur . . . . .	7
75		Padiyur-Kangayam . . . . .	7
76		Kangayam-Udiyur . . . . .	9
77		Udiyur-Dharapuram . . . . .	8
78		Gobichettipalayam-Savundapur . . . . .	7
79		Kollegal to Mugur <i>via</i> Chilukkavadi and Tagarapuram.	10
80		Kollegal-Sivasamudram . . . . .	11
		<i>III class roads.</i>	
81		Dharapuram-Dindigul . . . . .	6
82		Kamanaickenpalayam-Antur (Goltonpet Karumothampatti).	7
83		Kangayam-Kodumudi <i>via</i> Muthur . . . . .	20
84		Muthur to Mulanur . . . . .	22
85		Erode-Chennimalai <i>via</i> Vellodu . . . . .	13
86		Perundurai—32-3 of Erode-Satyamangalam road <i>via</i> Kolappalur.	...
87		Perundurai-Siruvalur . . . . .	7
88		Siruvalur-Kollapalur . . . . .	3
89		Kollapalur—32-3 of Erode-Satyamangalam road.	11

No.	District.	Principal bus services.	Mileage.
90	Coimbatore— <i>contd.</i>	Cheyur to Erode-Satyamangalam road (mile 27) <i>via</i> Nambiyur.	18
91		Thandakarampalayam to Pasur . . . . .	6
92		Satyamangalam-Mettupalayam . . . . .	27
93		Satyamangalam-Bhavani <i>via</i> Attani—	
94		Satyamangalam-Attani . . . . .	19
95		Attani-Bhavani . . . . .	13
96		Satyamangalam to 31-3 of Erode—	
97		Satyamangalam <i>via</i> Kodiveri . . . . .	6
98		Kavundapadi-Siruvalur . . . . .	15
99		Bhavani-Nerinjipet . . . . .	15
100		Andiyur to Attani . . . . .	6
101		Kollegal-Ajjiapuram . . . . .	20
102		Kollegal-Lokkanahalli . . . . .	12
103		Tagarapuram-Shandimarahalli . . . . .	3
104		Tirupur-Vijamangalam <i>via</i> Uthukuli—	
105		4-1 to 9-4 (Uthukuli) . . . . .	5
106		Uthukuli-Vijimangalam 9-4—16-1 . . . . .	7
107		Chennimalai-Uthukuli . . . . .	11
108		Chinnadharapuram, Pallapatti . . . . .	6
109		Kambaragundy to Talavedi . . . . .	6
110		Pollachi to Vannanthorai . . . . .	(Handed over to P. W. D. from 1st December 1924.)
		<i>Taluk board roads.</i>	
111		Cheyur to Kunnathur . . . . .	
112		Puliampatti-Nambiyur . . . . .	
113		Kollegal-Cauveri Ferry . . . . .	



No.	District.	Principal bus services.	Mileage.
		<i>Taluk board roads—contd.</i>	
114	Coimbatore—concl'd.	Attani-Gobichettipalayam . . . .	
115		Perundurair-Kunnathur . . . .	
116		Kollegal to T. Narasipur . . . .	
1	Cuddapah . . .	Cuddapah to Rayachoty . . . .	32
2		Cuddapah to Madithad <i>via</i> Rayachoty . .	47
3		Cuddapah to Veeraballi <i>via</i> Rayachoty . .	43
4		Madithad to Galivedu <i>via</i> Rayachoty and from Galivedu to Cuddapah <i>via</i> Rayachoty and Lakkireddipalli.	67
5		Cuddapah to Galivedu <i>via</i> Lakkireddipalli and Rayachoty.	52
6		Madithad to Madanapalli road <i>via</i> Rayachoty within the limits of Cuddapah district.	31
7		Rayachoty to Madanapalli road within the limits of Cuddapah district.	16
8		Kondavandlapalli to Kalakada <i>via</i> Raya- choty within the limits of Cuddapah district.	44
9		Madithad to Kalakada <i>via</i> Rayachoty . .	31
10		Rayachoty to Chitvel <i>via</i> Sanipaya Rajampet and Nandalur.	61
11		Muddanur to Pulivendla . . . .	23
12		Muddanur to Jammalamadugu . . . .	12
13		Jammalamadugu to Proddatur . . . .	14
14		Proddatur to Cuddapah <i>via</i> Mydukur . .	34
15		Cuddapah to Chagalamarri . . . .	38
16		Cuddapah to Porumamilla <i>via</i> Mydukur and Vonipenta.	48
17		Cuddapah to Kalasapad <i>via</i> Mydukur Badvela dn. Porumamilla.	73

No.	District.	Principal bus services.	Mileage.
18	Cuddapah — <i>contd.</i>	Cuddapah to Badvel <i>via</i> Mydukur . . .	44
19		Cuddapah to Porumamilla <i>via</i> Sidhout . . .	52
20		Vontimitta to Porumamilla <i>via</i> Sidhout . . .	50
21		Cuddapah to Pulivendla . . . . .	45
22		Cuddapah to Vainpalli . . . . .	27
23		Yerraguntla to Proddatur . . . . .	8
24		Sidhout Pennair river to Madhavaram <i>via</i> Vontimitta railway station.	16
25		Badvel to Dornal within the limits of Cuddapah district.	11
26		Potladurthi to Vainpalli . . . . .	27
1		Berhampur to Russelkonda and back . . .	94
2		Berhampur to Surada <i>via</i> Aska and back . .	88
3		Aska to Russelkonda and back . . . . .	50
4		Aska to Surada and back . . . . .	42
5		Tilaru railway station to Narasannapeta and back.	20
6		Sompeta town to Sompeta railway station and back.	6
7		Chicacole to Amidalavalsa and back . . .	12½
8		Amidalavalsa to Uppinivalsa and back . .	14
9		Parlakimedi to Maliaputti and back . . .	9
10		Maliaputti to Palasa and back . . . . .	38
11		Amidalavalsa to Calingapatam <i>via</i> Chicacole and back.	45
12		Parlakimedi to Tilaru and back . . . . .	49
13		Amidalavalsa to Hiramandalam and back . .	38
14		Berhampur to Chatrapur and back . . . .	25
15		Nowpada railway station to Narasannapeta <i>via</i> Tekkali (Three journeys).	54
16		Khallikote railway station to Mahanadi River near Aska <i>via</i> Khallikote Boirani Road and back.	80

No.	District.	Principal bus services.	Mileage.
17	Ganjam— <i>contd.</i>	Amidavalasa to Kotturu <i>via</i> Hiramandalam and back.	56
18		Berhampur to Pattapur <i>via</i> Hiramandalam and back.	43
19		Berhampur to Pattapur and Digupudi to Padmanabhapur and back.	45
20		Berhampur to Pattapur <i>via</i> Aska and back .	36
21		Berhampur to Purushothampur and back .	28
22		Gopalpur to Aska <i>via</i> Berhampur and back .	68
23		Narasannapeta to Calingapatam and <i>via</i> Karajada back.	34
1	East Godavari.	Dwarapudi to Ramachendrapuram . . .	12
2		Samalkota to Yeleswaram . . . .	23
3		Biccavole to Ramachendrapuram . . .	12
4		Rajahmundry to Gokavaram . . . .	20
5		Dwarapudi to Draksharama . . . .	15
6		Cocanada to Ramachendrapuram <i>via</i> Draksharama.	20
7		Tuni to Kotananduru . . . .	11
8	Guntur . . . .	Dwarapudi to Alamuru . . . .	12
1		Guntur and Atchampet <i>via</i> Sattenapalli .	50
2		Guntur and Chandole <i>via</i> Ponnur . . .	24
3		Narasaraopet and Gurzala <i>via</i> Dachepalli .	43
4		Narasaraopet and Macherla <i>via</i> Karempudu .	50
5		Guntur and Chilakalurpet . . . .	25
6		Narasaraopet and Chilakalurpet . . .	13
7		Gurzala and Macherla <i>via</i> Rentachintala .	16
8		Narasaraopet and Sattenapalle . . . .	13
9		Addanki and Kothapatnam <i>via</i> Ongole .	36
10		Ongole and Chimakurthi . . . .	13
11		Hanumantapalem and Tenali <i>via</i> Nandivelugu.	14

No.	District.	Principal bus services.	Mileage.
12	Guntur— <i>contd.</i>	Bhattiprolu railway station to the Nizam- patam Bank Canal <i>via</i> Kanagala.	13
13		Chirala and Chilakalurpet <i>via</i> Parchur.	25
14		Vinukonda and Gurzala <i>via</i> Karempudi	42
15		Guntur and Amaravati	21
16		Addanki and Santamagalur railway station	25
17		Satterapalli and Piduguralla	20
18		Vinukonda and Narasaraopet	26
19		Chirala and Venkayalpad <i>via</i> Parchur.	17
20		Chilakalurpet and Medaramitta <i>via</i> Konanki.	28
21		Jammulapalem and Chebrole <i>via</i> Bapatla and Ponnur.	30
22		Guntur and Prattipad	10
23		Narasaraopet and Addanki <i>via</i> Santha- magalur.	35
24		Tenali and Pedapudy	7
1	South Kanara .	Mangalore-Buntwal	14
2		Buntwal-Beltangady	21
3		Beltangady-Charmady	13
4		Charmady-Frontier	8
5		Mangalore-Panemangalore	14
6		Panemangalore-Puttur (direct)	15
7		Panemangalore-Puttur <i>via</i> Vittal	19
8		Puttur-Sullia	22
9		Sullia-Sampaje	16
10		Puttur-Bellare	16
11		Mangalore-Mulki	16
12		Mulki-Udipi	19
13		Udipi-Coondapur	22
14		Gangolli-uppunda	14
15		Karkal-Beltangady and thence to Ujre.	38

No.	District.	Principal bus services.	Mileage.
16	South Kanara— <i>contd.</i>	Kasaragod-Puttur . . . . .	40
17		Kasaragod-Sullia . . . . .	36
18		Puttur-Uppinangady . . . . .	8
19		Uppinangady-Beltangady . . . . .	15
20		Puttur-Vittal . . . . .	9
21		Mangalore-Kateel . . . . .	14
22		Kurchipalla-Puttur . . . . .	31
23		Mangalore-Uppinangady <i>via</i> Mani . . . . .	31
24		Uppinangady-Mani . . . . .	10
25		Mangalore-Moodabidri . . . . .	20
26		Moodabidri-Karkal . . . . .	10
27		Karkal-Someshwar . . . . .	26
28		Karkal-Udipi . . . . .	24
29		Karkal-Mulki <i>via</i> Nitte . . . . .	23
30		Karkal-Mulki <i>via</i> Moodabidri . . . . .	29½
31		Coondapur-Hulikal <i>via</i> Haladi . . . . .	33
32		Udipi-Someshwar <i>via</i> Bhadrageiri . . . . .	34
33		Udipi-Someshwar <i>via</i> Perdoor . . . . .	28
34		Byndoor-Bhatkal . . . . .	7
35		Manjeshwar-Puttur . . . . .	30
36		Kumbla-Puttur . . . . .	39
37		Puttur-Panja . . . . .	24
38		Beltangady-Mulki <i>via</i> Moodabidri . . . . .	42
1	Kistna . . . . .	Kondapalli to Mylavaram . . . . .	12
2		Mylavaram to Tiruvur . . . . .	27
3		Nuzvid to Nuzvid railway station . . . . .	14
4		Bezwada to Keesara . . . . .	25
5		Keesara to Jaggaihpeta . . . . .	24
6		Nazvid to Vissannapeta . . . . .	11
7		Masulipatam to Mopidevi . . . . .	20

No.	District.	Principal bus services.	Mileage.
8	Kistna--- contd.	Gudivada to Pamarru . . . .	8
9		Masulipatam to Chinamuktevi . . . .	13
10		Masulipatam to Bezwada . . . .	43
11		Gudivada to Kaikalur . . . .	20
12		Gudivada to Mudevepalli . . . .	8
13		Nuzvid railway station to Gudivada . . . .	16
14		Jagglahpeta to Lingala . . . .	16
15		Lingala to Borakallu . . . .	4
16		Gudivada to Vuyyur <i>via</i> Pamarru . . . .	16
17		Palugulahandi to Mopidevi . . . .	8
18		Masulipatam to Gudivada <i>via</i> Tedana and Gndlavally.	22
19		Bandar to Pamarru . . . .	16
20		Bezwada to Pamarru . . . .	27
21		Bezwada to Tiruver . . . .	51
22		Nuzvid railway station to Singarayapalem . . . .	27
1	Kurnool . . . .	Kurnool to Atmakur road and places between.	44
2		Kurnool to Nandyal . . . .	47
3		Atmakur to Nandyal and Koilkuntla road and places between.	54
4		Nandyal to Koilkunta and Nossam . . . .	42
5		Nandyal to Allagadda and Chagalamarri road.	40
6		Nandyal to Owk <i>via</i> Banganapalli and places between.	36
7		Kurnool to Patikonda and places between . . . .	51
8		Kurnool to Adoni (district limit) . . . .	50
9		Pattikonda to Tuggali railway station . . . .	7
10		Bestwarpet to Kanigiri (district limit) . . . .	8
11		Koilkuntla to Tadpatri road (district limit) . . . .	44
12		Markapur-Yerragondapoliem road . . . .	24

No.	District.	Principal bus services.	Mileage.
13	Kurnool— <i>contd.</i>	Kurnool Gooty road (district limit) . . .	52
14		Markapur-Dornal road . . .	3
15		Markapur-Markapur railway station . . .	...
16		Markapur-Bestwarpet via Cumbun . . .	...
1	Malabar . . .	Taliparamba to Payyanur . . .	20
2		Do. to Perumbai . . .	18
3		Do. to Taliparamba . . .	8
4		Perumbai to Koppam . . .	17
5		Baliapatam to Irikkur . . .	21
6		Cannanore to Baliapatam . . .	3½
7		Do. to Iritty . . .	25
8		Do. to Irikkur . . .	17
9		Do. to Mattanur . . .	15
10		Do. to Koodakadavu . . .	9
11		Do. to Mambram . . .	10
12		Azhikode to Irikkur . . .	9
13		Baliapatam to do. . .	21
14		Peringolam to Anjarakandy . . .	14
15		Tellicherry to Peringolam . . .	4
16		Do. to Manantoddy . . .	50
17		Kuthuparamba to do. . .	42
18		Do. to Panur . . .	3
19		Mahe to Iritty . . .	30
20		Nadapuram to Peringolam . . .	5
21		Badagara to Mokeri . . .	16
22		Do. to Kuttiati . . .	18
23		Do. to Talekkara . . .	19
24		Quilandy to Perambra . . .	20
25		Bavali to Manantoddy . . .	11
26		Calicut to Balusseri . . .	12

No.	District.	Principal bus services.	Mileage.
27	Malabar — <i>contd.</i>	Calicut to Beypore . . . . .	3
28		Do. to Pooner . . . . .	17
29		Do. to Purakateri . . . . .	3
30		Do. to Korapuzha . . . . .	4
31		Do. to Peramra . . . . .	25
32		Do. to Mukkam . . . . .	8
33		Elathur to Mankavu . . . . .	6
34		Quilandy to Poonoor . . . . .	31
35		Chundale to Meppadi . . . . .	7
36		Do. to Sholadi . . . . .	19
37		Meppadi to do. . . . .	12
38		Panamaram to Edaputty . . . . .	9
39		Calicut to Nilambur . . . . .	42
40		Do. to Manjeri . . . . .	28
41		Do. to Wandur . . . . .	38
42		Do. to Venhara . . . . .	39
43		Do. to Vazhikadavu . . . . .	53
44		Do. to Malappuram . . . . .	31½
45		Do. to Perintalmanna . . . . .	42
46		Manjeri to Tirur . . . . .	24
47		Do. to Wandur . . . . .	12
48		Do. to Karuvarakundu . . . . .	17
49		Do. to Arecode . . . . .	10
50		Calicut to do. . . . .	38
51		Manjeri to Vazhikadavu . . . . .	25
52		Do. to Angadipuram . . . . .	30
53		Malappuram to Parappanangadi . . . . .	20½
54		Do. to Perintalmanna . . . . .	12
55		Parappanangadi to Tirurangadi . . . . .	5
56		Angadipuram to Nilambur . . . . .	34



No.	District.	Principal bus services.	Mileage.
57	Malabar— <i>contd.</i>	Manjeri to Mannarghat . . .	28
58		Perintalmanna to Pattambi . . .	14
59		Do. to Mannarghat . . .	19
60		Pattambi to Cherpulcherry . . .	31
61		Do. to Olavakode . . .	35
62		Calicut to Feroke . . .	6½
63		Pattambi to Mannarghat . . .	33
64		Parappanangadi to Kottakkal . . .	8
65		Tirur to Chambravattam . . .	8
66		Kuttippuram to Valanchery . . .	5
67		Valanchery to Angadipuram . . .	12
68		Ottapalam to Cherpulcherry . . .	12
69		Do. to Perangode . . .	16
70		Do. to Para . . .	25
71		Do. to Kongad . . .	12
72		Do. to Karimpuzha . . .	29
73		Do. to Thootha . . .	14
74		Pattambi to Chowghat . . .	12
75		Chathukulam to Guruvayur . . .	3½
76		Ponnani to Edakulam . . .	12
77		Do. to Chambravattam . . .	4
78		Do. to Trittala . . .	16
79		Do. to Kuthanad . . .	19
80		Do. to Thirunavayi . . .	10
81		Pattambi to Enamakal . . .	20
82		Olavakode to Alanallur . . .	28
83		Do. to Mannarghat . . .	20
84		Do. to Thiruvazhikode . . .	31
85		Do. to Kollengode . . .	14
86		Do. to Ottapalam . . .	24

No.	District.	Principal bus services.	Mileage.
87	Malabar— <i>contd.</i>	Shoranur to Ottapalam . . . .	7
88		Palghat to Vadakanchery . . . .	19
89		Olavakode to Kadampazhipuram . . . .	14
90		Palghat to Nenmara . . . .	16
91		Do. to Kollengode . . . .	12
92		Do. to Alathur . . . .	15
93		Do. to Pudukottam . . . .	22
94		Do. to Chittur . . . .	6½
95		Do. to Padur . . . .	18
96		Do. to Kottayam . . . .	10
97		Do. to Para . . . .	8
98		Do. to Coimbatore district limit . . . .	15
99		Pudukottam to Vaniyambadi . . . .	24
100		Do. to Vatakanchery . . . .	18
101		Olavakode to Panchapattanam . . . .	16
102		Palghat to Ottapalam . . . .	18½
103		Ponnani to Pattambi . . . .	19
104		Nenmara to Tattamangalam . . . .	24
105		Palghat to Vaniyambadi . . . .	15
106		Pattambi to Chalassery . . . .	13
107		Nenmara to Vaniyambadi . . . .	14
108		Kollengode to Alathur . . . .	12
109		Palghat to Kunnichi . . . .	7
110		Kollengode to Mankara . . . .	9
111		Palghat to Aylor . . . .	18
112		Do. to Pattanchery . . . .	12
113		Tirur to Kottakkal . . . .	8
114		Do. to Perintalmanna . . . .	28
115		Kottakkal to Manjeri . . . .	16
116		Calicut to Pudukkottai . . . .	26

No.	District.	Principal bus services.	Mileage.
117	Malabar— <i>concl'd.</i>	Calicut to Meppadi . . . . .	49
1	Nellore . . . . .	Nellore-Atmakur road . . . . .	34
2		Nellore-Kaluvoy road . . . . .	41½
3		Kavali-Udayagiri road . . . . .	52
4		Kanigiri-Kur chedu road . . . . .	43
5		Singarayakonda-Kanigiri road . . . . .	39
6		Podili to Chimakurti road . . . . .	12
7		Kanigiri-Duttalre road . . . . .	40
8		Singarayakonda-Pamur road . . . . .	45
9		Kanigiri-Pamur road . . . . .	23
10		Kanigiri-Bestavarapet (up to the limits of this district.)	27
11		Kavali-Kaligiri-Kondapuram road . . . . .	34
12		Seetaramapuram-Badvel road (up to limits of this district.)	35
13		Talamanchi-Allur road . . . . .	8
14		Kavali to Allur road . . . . .	18
15		Nellore-Allur road . . . . .	17
16		Kodavalur-Utukur road . . . . .	10
17		Kodavalur-Butchiredipalem road . . . . .	10
18		Nellore-Indukurpet-Mypcd road . . . . .	15
19		Nellore-Kodur road . . . . .	13
20		Nellore-Lebur-Gangapatam-Mypod road . . . . .	19
21		Nellore-Thotapalli Gudur road . . . . .	9
22		Nellore-Muthukur road . . . . .	13
23		Nellore-Mulumudi road . . . . .	10
24		Nellore-Rapur road . . . . .	36
25		Nellore-Podalakur-Tatiparti-Virur road . . . . .	31
26		Nellore-Adurpalli-Chejerla road . . . . .	34
27		Nellore-Sangam to Kaligiri road . . . . .	38

No.	District.	Principal bus services.	Mileage.
28	Nellore— <i>contd</i>	Atmakur to Badvel road (up to the limits of this district).	36
29		Nellore-Sangam-Kaligiri-Udayagiri-Seetha-rampuram.	80
30		Venkatachallam-Muthukur road . . .	14
31		Manubolu-Podalakur-Penubarti road . . .	34
32		Gudur-Kota road . . . . .	16
33		Gudur-Rapur road . . . . .	22
34		Naidupet-Chittamoor road . . . . .	14
35		Naidupet-Kalahasti road (up to the limits of this district).	6
36		Nellore-Kota road . . . . .	40
37		Nellore-Venkatagiri road <i>via</i> Gudur . . .	51
38		Kavali-Vinjamur road . . . . .	31
39		Nellore-Pottempaud road <i>via</i> Bramhadevam .	11
40		Nellore-Vagoor road . . . . .	10
1	Nilgiris . . . . .	Ooty-Gudalur to Mysore road . . . . .	45
2		Ooty to Coonoor road . . . . .	12
3		Ooty-Coonoor to Mettupalayam road . . .	30
4		Coonoor to Kotagiri road . . . . .	13
5		Gudalur to Vayitir to Calicut road . . .	22
6		Ooty to Kotagiri road <i>via</i> Coonoor . . .	25
7		Coonoor to Mettupalayam road . . . . .	18
1	Ramnad . . . . .	Road No. 4 (Trunk road) . . . . .	29
2		Madura to Pudukottai . . . . .	19
3		Madura to Ramnad . . . . .	61
4		Paramakudi to Mudukulatur . . . . .	16
5		Ramnad to Kilakarai . . . . .	10
6		Madura to Pandalgudi . . . . .	28
7		Sarugani to Devakottai . . . . .	10

No.	District.	Principal bus services.	Mileage.
8	Ramnad—contd	Chekkudi to Tondi . . . . .	59
9		Dindignl to Vattanam . . . . .	55
10		Ramnad to Devipatam . . . . .	9
11		Madura to Tenkasi . . . . .	29
12		Srivilliputtur to Watrap . . . . .	8½
13		Manamadura to Tirupattur . . . . .	32
14		Karaikudi to Kanadukathan . . . . .	11½
15		Managiri to road No. 9 . . . . .	5½
16		Manamadura to Kamuthi . . . . .	22¾
17		Aruppukottai to Tiruchuli . . . . .	8
18		Aruppukottai to Virudunagar . . . . .	10
19		Sattur to Srivilliputtur . . . . .	20
20		Sivaksi to Virudunagar . . . . .	15
21		Rajapalayam to Tinnevely frontier . . . . .	6
22		Sivaganga to Paramakudi . . . . .	25
23		Tirupattur to Surakudi . . . . .	9
24		Karaikudi to Kothamangalam . . . . .	10
25		Sudiyur road . . . . .	3
26		Tiruchuli to Kamuthi . . . . .	27
27		Sattur to Elayirampanni . . . . .	7
28		Srivilliputtur to Mamsapuram . . . . .	4
29		Rajapalayam to Hills Mudangiar . . . . .	3½
30		Sattur to Henmeni . . . . .	6
31		Rajapalayam to Samsigapuram . . . . .	3
32		Watrap to Khansapuram . . . . .	1
33		Talukapatti to Kanniseri . . . . .	2
34		Sivaganga to Melur . . . . .	8
35		Poovandhi to Melur . . . . .	2
36		Tondi to Tirupalakudi . . . . .	16

No.	District.	Principal bus services.	Mileage.
	Ramnad— <i>concl'd.</i>		
37		A. Thekkur to frontier . . . .	2½
38		9-B. (Road 9 to A. Thekkur) . . . .	5
39		10-A. Tondi to Vattanam . . . .	6
40		Devakottai to Velimuthu . . . .	1½
41		Pamban to Rameswaram . . . .	8
42		A. Tirupattur to Kandiramanikkam . .	6½
43		1-B. Tirukshtiyur to Kandiramanikkam .	5½
1	Salem . . . .	Salem to Namakkal . . . .	32
2		Salem to Komarapalayam . . . .	35
3		Salem to Attur . . . .	32
4		Krishnagiri to Hosur . . . .	31
5		Krishnagiri to Dharmapuri . . . .	29
6		Salem to Mohanur . . . .	46
7		Hosur cattle farm to Bangalore (district limit).	9
8		Hosur to Denkanikottah . . . .	16
9		Namakkal to Sankari <i>via</i> Tiruchengode .	29
10		Mohanur to Velur . . . .	26
11		Salem to Trichinopoly (up to district limit) .	39
12		Namakkal to Trichinopoly (up to district limit)	7
13		Salem to Cuddalore (up to district limit) .	45
14		Namakkal to Komarapalayam . . . .	40
15		Mohanur to Sankari railway station . .	38
16		Salem to Komarapalayam <i>via</i> Namakkal and Sankari.	64
17		Dharmapuri to Hosur . . . .	60
18		Dharmapuri to Pennagaram . . . .	19
19		Salem to Hosur <i>via</i> Dharmapuri, Krishnagiri	101
20		Morappur to Hosur . . . .	8
21		Samalputti to Anandavadi . . . .	13

No.	District.	Principal bus services.	Mileage.
	Salem— <i>contd.</i>		
22		Salem to Talavasal <i>via</i> Attur . . . .	43
23		Salem junction to Yercaud . . . .	13
24		Salem to Dharmapuri . . . .	41
25		Attur to Kallakurichi (district limit) . .	13
26		Salem to Yedappadi <i>via</i> Macdonald's choultry	23
27		Hosur to Malur . . . .	11
28		Denkanikottah to Krishnagiri . . . .	47
29		Namakal to Velur . . . .	15
30		Malur to Denkanikottah <i>via</i> Harur . . .	27
31		Kelamangalam to Hosur <i>via</i> Denkanikottah .	23
32		Salem to Velur . . . .	47
33		Salem to Tiruchengode . . . .	33
34		Krishnagiri to Bangalore . . . .	36
35		Denkanikottah to Bangalore . . . .	21
36		Salem to Krishnagiri . . . .	70
37		Malur to Bangalore . . . .	16
38		Komarapalayam to Namakal . . . .	42
39		Pennagaram to Salem <i>via</i> Dharmapuri .	60
40		Dharmapuri to Bangalore . . . .	65
41		Salem to Bangalore (district limit) . . .	106
42		Suramangalam to Velur . . . .	50
43		Salem to Sankari . . . .	23
44		Rasipuram to Komarapalayam <i>via</i> Namakal	56
45		Salem to Namagiripet . . . .	22
46		Hosur to Trichinopoly (district limit) . .	140
47		Namakal to Krishnagiri <i>via</i> Salem and Dhar- mapuri.	102
48		Krishnagiri to Velur . . . .	117
49		Sankari to Velur . . . .	42

No.	District.	Principal bus services.	Mileage.
	Salem—concl'd.		
50		Namakal to Pennagaram . . . . .	92
51		Kelamangalam to Krishnagiri . . . . .	53
52		Yercaud to Krishnagiri . . . . .	80
53		Kelamangalam to Bangalore . . . . .	27
54		Dharmapuri to Namakal . . . . .	73
55		Samalpatti to Tiruvannamalai (district limits)	13
56		Velur to Attur . . . . .	79
57		Krishnagiri to Trichinopoly . . . . .	109
58		Suramangalam to Cuddalore . . . . .	48
59		Attur to Komarapalayam . . . . .	67
60		Namakal to Attur . . . . .	64
61		Cuddalore to Trichinopoly <i>via</i> Attur (district limits).	84
62		Komarapalayam to Nainamalaishandy <i>via</i> Namakal	48
63		Namakal to Bangalore . . . . .	133
64		Salem to Namakal <i>via</i> Sankari . . . . .	50
65		Yercaud to Komarapalayam . . . . .	48
66		Omair to Namakal . . . . .	42
67		Komarapalayam to Trichinopoly . . . . .	47
68		to Velur <i>via</i> Namakal Trichengode.	55
69		Yercaud to Edappadi . . . . .	36
70		Krishnagiri to Pennagaram . . . . .	48
71		Rasipur to Trichengode <i>via</i> Namakal . . . . .	38
72		Hosur to Velur . . . . .	148
73		Edappadi to Pennagaram <i>via</i> Macdonald's choultry Salem, Dharmapuri.	83
74		Edappadi to Velur <i>via</i> Sankari and Namakal	37
75		Namakal to Hosur . . . . .	133
76		Attur to Trichinopoly <i>via</i> Salem and Namakal	71



No.	District.	Principal bus services.	Mileage.
1	Tanjore . . .	Tanjore to Gandrakkottai . . . .	18
2		„ to Pattukkottai . . . .	30
3		Tirukkattuppalli to Budalore . . . .	5
4		„ to Tiruvadi . . . .	12
5		Kumbakonam to Needamangalam . . . .	14
6		„ to Kodavasal . . . .	11
7		Kodavasal to Koradacheri . . . .	7
8		Adutturai to Lower Anicut . . . .	10
9		Nannilam to Kuruvady . . . .	6
10		Mayavaram to Tranquebar . . . .	16
11		Nagore to Karanikal . . . .	1
12		Papanasam to Saliangalam . . . .	10
13		Arantangi to Pudukkottah boundary . . . .	9
14		Kumbakonam to Neelathanallur . . . .	6
1	Trichinopoly . . .	Trichinopoly to Pudukottai . . . .	16
2		„ to Perambalur . . . .	72
3		„ to Puvalur . . . .	28
4		„ to Ariyalur . . . .	80
5		„ to Namakul . . . .	88
6		„ to Illuppur . . . .	50
7		„ to „ . . . .	56
8		„ to Vriddhachailam . . . .	102
9		„ to Turaiyur . . . .	60
10		„ to Vellanur . . . .	36
11		„ to Lalgudi . . . .	16
12		Jayankondam to Lower Anicut . . . .	24
13		„ to Madanathur . . . .	24
14		„ to Ariyalur . . . .	46
15		„ to Thirumanur . . . .	80

No.	District.	Principal bus services.	Mileage.
16	Trichinopoly— <i>contd.</i>	Udayairpalayam to Lower Anicut . . . .	34
17		Thirumanur to Ariyalur . . . .	32
18		Karur to Chinnadarapuram . . . .	46
19		„ to Rattapatti . . . .	44
20		„ to „ . . . .	54
21		„ to Dindigul . . . .	24
22		„ to Dharapuram . . . .	42
23		Pallapatti to Dindigul . . . .	18
24		Mauaparai to Thuvarankuruchi . . . .	34
25		„ to Kulittalai . . . .	48
26		Musiri to Turaiyur . . . .	36
27		„ to Tattayyangarpettai . . . .	36
28		Thuraiyur to Perambalur . . . .	44
29		„ to Uppiliyapuram . . . .	16
1		Vizagapatam . . . . Uppinavalasa to Veeraghattam . . . .	30
2		Cheepurupalli to Razam . . . .	11
3		Veeraghattam to Parvatipur . . . .	16
4		Anakapalle to Madugole . . . .	20
5		Vizianagram to Vizagapatam <i>via</i> Bimlipatam	36
6		Gujarathipeta to Rajam . . . .	22
7		Sankili to Veeraghattam . . . .	15
8		Parvatipore to Rayaghada . . . .	15
9		Salur to Itikavalasa . . . .	6
10		Parvatipore to Gunupore . . . .	14
11		Poodimadaka to Madugole . . . .	37
12		Uppinavalasa to Palakonda . . . .	12
13		Vizianagaram to Vizagapatam . . . .	35
14		Bimlipatam to Vizagapatam . . . .	16
15		Vizianagaram to Chicacole <i>via</i> Chepurapali .	38

No.	District.	Principal bus services.	Mileage.
16	Vizagapatam— <i>contd.</i>	Donkinavalasa to Sitharampuram . . .	44
17		Chicacole to Vizianagaram <i>via</i> Ramatturthalu	38
18		Payakaroopeta to Yellamanchili . . .	25
19		Vizianagaram to Chicacole <i>via</i> Denkada .	37
20		Salur to Vizianagaram . . . . .	36
21		Veeraghattam to Sankili . . . . .	19
22		Vizianagaram to S. Kota . . . . .	19
23		Anakapalle to Kristnadevipeta . . . . .	48
24		Vizianagaram to Vizagapatam <i>via</i> Denkada and Bimlipatam . . . . .	45
25		Anakapalle to Narasapatam . . . . .	30
26		Nakkapalu to Yellamauchili . . . . .	14.8
27		Krishtnadevipeta to Chodavaram . . . . .	47
28		Nakkapalu to Thallapalam . . . . .	20.6
29		Narasapatam to Yerakobhopatti agararhaam	13.7
30		Vizianagaram to Padmanabha . . . . .	19½
31		Kotazandur to Naarsapatam . . . . .	37

# Replies to the questionnaire submitted by the Government of Bombay.

## A.—ROAD DEVELOPMENT.

1. The required map\* is sent separately.

	Provincial roads mileage.	Local board roads mileage.
(i) Metalled . . . . .	6,216	2,504
Unmetalled . . . . .	2,359	18,237
Total . . . . .	<u>8,575</u>	<u>20,741</u>

(ii) and (iii) Information\* has been called for from the local officers and will be furnished separately.

(iv) Government is responsible for the maintenance of provincial roads with the exception of a few provincial roads in the Poona and Ahmednagar districts, which have been transferred to the District Local Boards for maintenance from provincial revenues, and Local Boards are responsible for the maintenance of Local Board roads.

(v) The existing arrangements for financing the construction and maintenance of provincial and Local Board roads are the following :—

(a) *The cost of construction of provincial roads* is ordinarily met from Provincial revenues under the head '41—Civil Works, Provincial'. In case where the cost of a scheme of road construction including the construction of bridges or causeways or culverts amounts to Rs. 5 lakhs or over, the cost is met from loan funds under the head '60—Civil Works'.

*The cost of maintenance of provincial roads* is debitable to the head '41—Civil Works, Provincial.'

(b) *The cost of construction and maintenance of Local Board roads* is met from Local Board funds supplemented by grants from provincial revenues (amounting to Rs. 19 lakhs during the current year; an equal amount is also proposed to be granted for the ensuing year).

(vi) Please see Appendix II—Statement A.

(vii) Please see Appendix II—Statements B and C.

2. In the Bombay Presidency the conditions existing in the Presidency proper (excluding Sind) are entirely different from those in Sind. The Presidency proper is already provided in most places with a more or less adequate net work of main and branch roads, though there are still parts (*e.g.*, portions of Guzerat, Ratnagiri district, etc.) where this does not apply. In Sind, however, a country of great distances and large area there are practically no roads worth the name. It is true that nearly 12,500 miles of "Kuchha" roads are shown on paper as unmetalled roads, but in actual fact these are in most cases nothing more than cart

tracks or even camel tracks, and are for the most part entirely unsuited for use by motor transport. If therefore in replying to this question the two so widely different portions of the Presidency are lumped together, the figures so obtained would be misleading if applied to either Sind or the Presidency proper. A statement (Appendix II—Statement E) is therefore appended giving the figures asked for, for—

- (a) Bombay Presidency (including Sind).
- (b) Presidency proper (excluding Sind), and
- (c) Sind only.

These figures illustrate in a very striking manner how very different are the conditions and problems as regards road development in the two parts of this Presidency. The problem before Government in Sind is that of constructing metalled or otherwise surfaced roads in a country where little or no stone exists and where no surfaced roads have yet been constructed, while the problem before Government in the Presidency proper is, generally speaking, that of reconstructing and improving existing roads to meet modern traffic requirements.

3. (a)—

Lakhs of Rs.

(i)  $\frac{90}{1,390}$  or 6.48 per cent

(ii)  $\frac{10.1^*}{72.9}$  or 13.85 per cent.

(There are no data for splitting up these figures into those for Presidency proper and those for Sind).

(For Presy. proper  $\frac{8.12}{56.7}$  or 14.32 per cent.

1.38

For Sind  $\frac{16.2}{16.2}$  or 12.22 per cent.)

	Rs.	A.	P.		Rs.		Rs.	A.	P.		Rs.
(b) (i)	0	7	6	or .47	{	For Presy. proper	0	8	2	or .51	}
						For Sind . . .	0	4	0	or .25	
(ii)	0	9	9	or .61	{	For Presy. proper	0	10	11	or .68	}
						For Sind . . .	0	4	10	or .3	
(iii)	0	1	1	or .07	{	For Presy. proper	0	1	1	or .07	}
						For Sind . . .	0	1	2	or .07	

4. Road traffic statistics have not been maintained by this Government hitherto. The Road Board appointed by Government in 1926 decided that statistics should be collected for roads. Accordingly the Superintending Engineers have been asked to collect them as per sample form (Appendix I). It is suggested that it is desirable that the Road Development Committee should suggest to all local Governments a uniform method of collecting traffic statistics. The Committee may be able to evolve a uniform method after the sub-committee has visited the provinces.

5. The road system in this Presidency has gradually developed from olden times in accordance with the needs of the military and local

\*Based only on figures of 1924-25 and 1925-26. 1926-27 figures are not available  
 †This distribution is only approximate as it is based on budget allotment.

transport. The road system comprises provincial trunk roads and feeder roads, and local board roads almost wholly of the latter category. The provincial trunk roads and provincial feeder roads are in charge of the Public Works Department except in the case of the Poona and Ahmednagar divisions, where certain provincial roads have been handed over to the District Local Boards concerned for maintenance as an experimental measure.

The District Local Board roads are partly in charge of the Local Boards and partly in charge of the provincial Establishment.

The map\* shows the provincial trunk roads, the important towns in the province which they connect, and the way in which they link up with the road systems of adjacent provinces and States.

6. The existing roads are not suited to the increased volume of mechanical transport, and there is general complaint that roads are in many places deteriorating owing to the use of motor cars and especially heavy lorries. The damage naturally occurs chiefly during the rains, when the crust of metal in the present water-bound surfaces is unable to bear the load to which it is subjected. Many lengths of road therefore need to be reconstructed to suit modern traffic conditions. It is for this purpose that the Road Board has called for information regarding the classification of roads into trunk and feeder roads and into roads carrying heavy motor traffic, medium traffic and light traffic. When roads are classified according to their importance and the traffic they carry the existing state of affairs can only be remedied by re-constructing many lengths of road to bring them upto the standard rendered necessary by modern traffic conditions. For this work no funds are as yet available.

7. The nature of development can only be stated on broad lines as conditions vary in different parts of the Presidency. In some places there is urgent need of providing good foundations, such as rubble soling, where earth is of poor quality, *e.g.*, in black cotton soil areas. In other cases the most suitable treatment would be to retain the existing metalled road-way as a foundation and put over it a 4" layer of large gauge metal and then a 2" layer of standard 1½" gauge metal. In cases of less important roads it may be advisable to attempt strengthening two narrow strips to take the wheel tracks, *i.e.*, two strips of 2½' to 3' width each only might be strengthened, the remaining width being left as at present. Experiments on these lines have yet to be carried out. For really important roads modern methods of asphalt "Mexaco" or other such treatment will obviously have to be adopted. The pace of development will inevitably have to follow that of motor traffic.

In the case of very important road approaches converging on to the large cities like Bombay, Poona, Ahmedabad, Belgaum, etc., the question of dust is an important one as motor traffic on such lengths of road is very heavy. For example, portions of the Bombay-Agra road near Bombay, Ghatkopar and Kalyan or of the Bombay-Poona road near Bombay and Poona, the Poona-Bangalore road near Poona and towns

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\*Not printed.

like Satara, Belgaum, Dharwar, etc., urgently require adequate surface treatment with asphaltic material for obviating dust.

Roads like those mentioned above, as well as other roads in the districts where motor traffic is heavy, need strengthening of their foundations, chiefly in parts where roads pass through bad soil areas such as black cotton soil.

Most of the present roads were built in days when the only kind of vehicular traffic was the bullock or horse-drawn vehicles. Consequently the crust of metal is thin. In many parts in the rains the whole road-way becomes soft, and if motor lorries, etc., pass over roads in that condition, the roads get literally ploughed up, as for example the portion of the Poona-Bangalore road beyond Karad or the Karad-Chiplun road. The remedy in the case of heavy trafficked roads is to provide rubble foundations for important roads but this involves heavy expense. On the less important roads the retention of the present metalled surfaces as foundation and the addition of a 4" to 6" layer of any 3" gauge metal and a final 2" coat of 1½" gauge metal will in most cases suffice but each case, of course, requires to be dealt with on its merits.

(b) Government is of opinion that in the present state of development in this Presidency, the construction of new roads and re-construction of existing roads to meet modern traffic requirements must be met from loan funds.

(c) Yes. At present the limit is that only works costing Rs. 5 lakhs and over may be financed out of loan funds. This Government is of opinion that they should have power to finance extensions or radical re-construction of portions of existing roads to meet modern traffic requirements from loan funds with proper safeguards for amortization.

8. The Agent, Great Indian Peninsula Railway, is of opinion—

- (1) that the railways would welcome road development so long as it is not antagonistic to railway development;
- (2) that roads should act as feeders to railways, *i.e.*, they should be built more or less at right angles to railway lines;
- (3) that if a campaign of extensive motor competition is to be carried out along grand trunk road parallel to railways, the upkeep of these roads will become a very serious problem, and the only way to meet this expense will be by the imposition of a heavy motor vehicle tax or a tax on petrol, so there is every possibility of a time coming when motors will be taxed off the road.
- (4) that co-ordination in road and railway development is essential and that a Central Road Board under the Government of India should be formed to co-ordinate projects put up by local Governments and which would be in direct communication with the Railway Board and the Railway Department should undertake the construction of new railways in consultation with the Road Board, and



- (5) that at present no machinery exists for the co-ordination of road and railway development except possibly in the United Provinces in the Board of Communications.

The Agent, Madras and Southern Mahratta Railway Company, is of opinion that railways should be constructed before any regular programme of road construction is approved ; and states that as far as is known no provision exists for co-ordinating road and railway development.

The Commissioner, Central Division, is of opinion that there should be co-ordination between road and railway development and that the easier way to secure it would be to invite the railway authorities to take part in the deliberations of the Road Board and that railway projects should be referred to the Road Board for report.

The Commissioner, Southern Division, states that there is no question of development of roads in his division and they are at present concentrating on putting existing trunk roads in good order and are improving existing feeder roads and that neither of these endeavours will affect the existing or projected railways.

Government is of opinion that the proposal of the Commissioner, Central Division, would be of great value particularly in Sind where such co-ordination will be urgently necessary. The principle has already been accepted in Sind where there is an Advisory Communications Board for roads and railways. Such a Board is not necessary in Bombay as the main road system has already been constructed.

9. (a) The facilities afforded by the Government Test House, Alipore, have not hitherto been utilised in this Presidency.

(b) Water-bound macadam which is the principal type of surface hitherto in use does not admit of experiment and research on any large scale as, in order to avoid heavy transport charges, the best available local material has to be used. Some useful experiments on asphaltic surfaces have been carried out by the Public Works Department. Much work in the same direction has also been carried out on municipal roads in Bombay by the Bombay Municipality.

(c) No.

(d) Yes, but provision for direct research by the Central Road Board should be small if indeed any such organization is required. It is considered that more useful results can be obtained by subsidies to the Public Works Departments of local Governments and that the Central Road Board should primarily act as a clearing house of information on the subject.

#### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

1. Please see Appendix II, Statement D.
2. Motor transport will continue to increase owing to the low price at which motor vehicles are now available and to the facilities afforded by rapid mechanical transport.



3. Motor vehicles are taxed—(1) by Government and (2) by local bodies.

Taxation by Government consists of registration fee—

Rs. 4 for a motor cycle,

Rs. 16 for a motor vehicle weighing less than 2 tons.

Rs. 32 for a motor vehicle weighing more than 2 tons.

(It may be noted that this is only *taxation* in respect of the excess of receipts over the cost of the Registration Department.)

Government also charges a fee for general driving license (Rs. 10). These charges are levied under the Bombay Motor Vehicles Rules of 1915 on all vehicles. Vehicles plying for hire are in addition liable to the payment of fees for the issue of owner's permit (Rs. 5 for the first issue and Rs. 2-8 for renewal) and public driver's permit (Rs. 5 in Bombay City and Rs. 4 elsewhere for the first issue and half of these rates for renewal). Taxation by local bodies consists of tolls and wheel-taxes. These are levied at varying rates in different localities.

4. The proceeds of none of these taxes are allocated to the expenditure on roads. It may be interesting to note, however, that the expenditure on roads from the provincial and local revenues is far in excess of the proceeds from these taxes. It has been computed that tolls both on provincial and local roads in Bombay brought in in the year 1925-26 a revenue of 17 lakhs. The special taxation on motor vehicles according to a rough estimate brought in approximately 7 lakhs. The proceeds of purely provincial duties like registration and license fees are likely to be very small. Thus the revenue raised by the provincial and local authorities in the year 1925-26 amounted to about Rs. 24 lakhs. On the other hand the expenditure on provincial roads from provincial revenues alone, amounts on an average to about 70 to 75 lakhs. Over and above this grants to the extent of 19 lakhs are given to the local boards for road building and maintenance. The local bodies themselves spend from their own resources somewhere about Rs. 10 lakhs each year on new roads and repairs. Thus approximately a crore is spent in this province on construction of roads and their maintenance.

5. As stated above the main provincial and local taxation of motor traffic is by way of registration fees, licences, toll and vehicle taxes. All these between them hardly produce Rs. 25 lakhs, whereas the provincial expenditure on roads is nearly 100 lakhs. Any question of allocation is therefore only of academic interest. There is, however, no objection in theory to embark taxation on transport for expenditure on roads. The principle as far as the proposed excise duty on petrol is concerned has been accepted by the Bombay Government.

As regards central taxation the problem is of greater interest. The Central Government collected by way of customs duties on motor vehicles, tyres and tubes and excise duty on motor spirit, a sum of Rs. 270 lakhs in 1926-27. This is a growing source of revenue, and the figure may be 3 crores in the very near future. The question

whether this sum should be allocated for expenditure on roads is administratively for the Government of India to decide. The taxation of motor cars for general revenues has been justified on the ground that it is luxury taxation. It may be affirmed, however, that with the growth of cheaper cars and specially with the growth of buses and lorries, motor transport has come to be used more by the poor than by the rich. It need not be denied that some of the expenditure on motor cars, especially in towns, is really luxury expenditure, but in up-country places cheaper and stronger motor cars and buses and lorries are essential for ordinary transport purposes and not for luxury. The conclusion is that motor transport has now become ordinary transport and is no more a luxury. Any taxation of motor vehicles therefore is essentially a taxation of transport and as such to be discouraged unless the proceeds are used in encouraging the development of road transport. The expenditure of the whole or part of the proceeds of this taxation for development of roads is justifiable.

6. This again is largely a question of academic interest. However, certain broad principles may be laid down. It may be recognised that as all motor vehicles and accessories, including tyres and tubes, are imported from abroad, a customs duty is by far the most suitable form of taxation to be levied by the Central Government.

As regards the customs and excise duty on motor spirit, the case is slightly different. As far as customs duty is concerned it must be collected centrally as all customs duties are; even as regards the excise duty on home production the best way of taxing would be on all-India basis.

The provinces may, however, be empowered to levy centimes additionnels on the all-India petrol duty which may be collected for them by the Central Government acting as their agents and handed over to them. The figures of consumption in each province can be supplied by the oil companies.

As regards provincial taxation, at present it consists mainly of tolls, licence fees, and registration fees. The amount collected from these sources is small. With regard to registration fees, such fees should, it is considered, cover the cost of their administration, but local Governments should reserve the right to increase the fees—and therefore the income therefrom—should they deem it necessary.

With regard to tolls the Taxation Enquiry Committee with which this Government, as a matter of general principle, agree, definitely condemned tolls as a means of taxing motor transport, and it is recognised that tolls on roads are a source of annoyance which it is desirable to reduce or if possible to remove entirely. But in the present financial situation this Government considers that tolls are not unjustifiable on bridges, and ferries constructed at considerable cost, and such tolls would be few in number and would not therefore impede traffic seriously. This Government further considers that tolls might justifiably be levied on lengths of roads specially reconstructed or drastically improved to meet the needs of motor traffic, provided a simple method of collecting such tolls can be devised.

The recent policy of this Government has been towards the gradual abolition of tolls, but financial exigencies have prevented the development of this policy and may even necessitate the re-imposition of tolls.

The chief sources of local taxation of transport are tolls and wheel-tax. As in the case of provincial taxation referred to above, it is considered that taxation by means of tolls should be definitely discouraged, as a matter of general principle, except in the case of big bridges or ferries or lengths of road drastically improved or reconstructed by the local authorities. In the present state of development, however, we must allow local authorities to levy tolls for the maintenance of their roads for which they are responsible.

7. This question invites views on the proposals made by the Bombay Government. This Government therefore need not express any opinion.

8. (a) The import duty should be on an *ad valorem* basis.

(b) The present system should be maintained.

9. As far as local taxation goes it is essential that the local Government should impose maxima. This can be done as no local authority may impose a vehicle tax without the consent of the local Government.

10. Even at present motor vehicles which have already paid licence or wheel tax in one locality are not assessed to similar taxes in another locality for a definite period of exemption which varies from place to place. It might be necessary to enforce such exemption by legislation. The question of exemption does not arise in connection with tolls or the proposed petrol tax.

11. As the expenditure of this Government on roads is far in excess of the revenue it now derives or is likely to derive in the near future from taxation of transport, no particular object will be served by maintaining a Provincial Road Fund.

The question whether a Central Road Fund should be maintained will depend upon the way in which the proceeds of central taxation are to be distributed among the provinces. If the whole of the proceeds are to be distributed by means of block grants the necessity of maintaining a Central Road Fund will not arise. If, however the Central Road Board is to retain a certain portion of the revenues in its own hands for expenditure on specific objects for the development of all-India communications and for research, then in the opinion of this Government it will be better to have a Central Road Fund so far as this portion of the revenues is concerned. The device of constituting a separate fund on the lines of those existing in other countries is better than that of maintaining a mere *pro forma* account and is more likely to satisfy the Assembly and the Provincial Governments that the funds earmarked for road development are being properly spent on that object.

So far as the proceeds of the additional two annas duty on petrol proposed by this Government are concerned, they adhere to their proposals in paragraph 5 of their letter of 16th May 1927 to the Government of India (printed as Appendix II to the questionnaire) in which they

stated that they would give an undertaking that an amount equivalent to the amount of the tax shall be spent on roads or on service of loans for roads in addition to the average amount already being spent. They would like to make this reservation however that, if rationing of departmental expenditure is required, they would spend the amount of the additional petrol tax in addition to the rationed amount of the provincial expenditure on roads for that year.

12. The Government is not in favour of provisions similar to those of Devolution Rule 12-A being made applicable to all-India roads, even though the Central Government may make a grant for the construction of such roads. The question of the way in which the Devolution Rules should be amended will depend upon the principles on which the central revenues are to be distributed. If block grants are to be made, the Devolution Rules may be so modified as to empower the Central Government to make such grants and satisfy themselves that they are used by the provincial Governments for the objects for which they were intended. If, however, a Central Road Fund is to be maintained for the development of all-India communications, research, etc., the local Governments should be given a voice in deciding whether or not to participate in the scheme. In any case, the works should be carried out through their agency. In that case the Devolution Rule may be so modified as to empower the Central Government to fix the amount of the expenditure on such works and the proportion of their share in agreement with the local Governments concerned.

13. (a) In conformity with the practice in other countries roads should be divided into different classes such as (1) national highways or all-India roads, (2) provincial trunk roads, (3) provincial feeder roads, (4) local roads, etc. Revenue from central taxation may be spent on roads of the first and second class. In the opinion of this Government it is far more important under the present circumstances to improve and reconstruct provincial trunk roads as well as the portions of all-India roads traversing the boundaries of each province so as to make them fit for modern traffic requirements than to construct new all-India roads. For provincial roads central revenues may be distributed in the form of block grants and the greater portion of the proceeds of central taxation should, in the opinion of this Government, be so distributed. The Road Board might, however, desire to construct a new all-India road or an essential link connecting two all-India roads or a bridge or bridges necessary for through motor communication along such roads. In such cases the central revenues will have to be allocated for the specific objects.

(b) When central revenues are allocated for specific objects no question of distributing them among the various provinces on any such basis as petrol consumption, mileage, road expenditure, etc., arises. When block grants are given this Government is of opinion that they should be distributed on the basis of petrol consumption. The additional two annas duty per gallon of petrol consumed in this province, which has been proposed by this Government, will of course be ex-hypothesi according to consumption. This duty, however, is not derived from central taxation. The block grants from central taxation will come



either from additional duty on petrol or from the whole or portion of the existing petrol duty. The most equitable method of distributing this duty among the provinces seems to be in accordance with their actual consumption of petrol. This Government is not in favour of including population as a factor in the allocation, as population does not seem to have any bearing on the question. As for other factors such as mileage, horse-power, number of vehicles, etc., they do not by themselves constitute so equitable a claim on central revenues as petrol consumption which clearly represents the actual use being made by motor transport of roads in different parts of the country. The only other factor this Government is prepared to consider is that of expenditure on roads. As for the backward provinces, any encouragement that they might need might be given by means of grants for specific objects.

14. No, except so far as District Local Boards are concerned.

15. No.

### C.—ROAD BOARDS.

1. Yes. This Government formed last year, under the Chairmanship of the Honourable Minister, Local Self Government, a Road Board consisting of official and non-official members. The latter include representatives of District Local Boards and a representative each of the Chamber of Commerce, Bombay, and the Western India Automobile Association, Bombay. The full strength of the Road Board will be found in Government Resolution No. 3849, dated 24th June 1927 (Appendix III). The functions of the Road Board are to advise Government—

- (1) on the division of the roads into classes in accordance with their importance and utility,
- (2) on the laying down of standards to which each class of road should conform,
- (3) on the allocation of the funds that may from time to time be available for road construction and improvement,
- (4) on the policy to be followed in regard to the provincialisation of roads, and
- (5) generally on the construction of new roads and the extension and improvement of existing roads and their utilisation by various forms of transport.

As the Board has only recently been constituted, it is not yet possible to point to any concrete results of its work, but much useful preliminary work has been done and it is hoped that if proposals regarding taxation (by petrol tax or otherwise) which have been laid down by this Government before the Government of India, meet with acceptance by that Government, it will be possible to obtain loan funds for road development on a large scale. In that case it is confidently anticipated that the Road Board will be of great assistance in advising Government how such funds can best be expended in the interest of the general development of the country and its resources.

2. Yes. A Central Road Board is desirable.

3. The Central Road Board should consist of representatives of the Central Government, a few members of the two Houses of the Central Legislature and two members from each province. It would be advantageous to appoint Honourable Ministers who are in charge of the roads in the provinces and the Chief Engineer, Roads and Buildings, of each province, as members of the Road Board. The functions of the Road Board should be primarily advisory and should consist of co-ordination of the works of local Governments, the allocation of block grants according to fixed principles, the conduct of research, etc. If a Central Road Fund for the development of all-India communications is formed the Road Board will have to determine, in consultation with the local Governments, the specific objects on which the fund should be expended and the terms and conditions on which the Central Government's share of the expenditure on such specific works is to be provided.

4. By an annual meeting of the Central Road Board. Also by permanent officials of the Central Road Board visiting provinces and discussing matters with the local Governments and District Local Boards.

#### D.—GENERAL.

The local Government desires to express the view that the improvement and development of provincial roads is generally speaking of considerably greater importance, than that of interprovincial arterial roads. They feel that from the point of view of motor transport it is of far greater importance that the length of main road from, for instance, Bombay to Poona should be fit for modern traffic than, say, a trunk road from Bombay to Delhi. For long distances such as Bombay to Delhi they feel that the railway is the natural means of communications, though there are many portions of such a road, say, in lengths up to 100 to 150 miles or so, between large towns, etc., for which motor transport would be more convenient and suitable than travelling by rail.

## APPENDIX I.

Accompaniment to reply to question No. A-4.

## ROAD BOARD STATISTICS OF TRAFFIC.

Form No. 1

Division \_\_\_\_\_

Road \_\_\_\_\_

Section \_\_\_\_\_

Date \_\_\_\_\_

Time From \_\_\_\_\_ m to \_\_\_\_\_ m

Enumerator's name.

Classification of vehicles.	Enumeration of vehicles. Each vehicle to be indicated by a stroke from right to left thus /-	Total.
<b>Motor vehicles.</b> Motor cycles. Motor cars (taxis or touring cars.) Motor omnibuses. Motor lorries, pneumatic tyred. Motor lorries, solid tyred.		
<b>Horse or bullock drawn vehicles.</b> Two wheeled horse drawn vehicles. Four wheeled horse drawn vehicles. Bullock carts.		
Flocks of cattle, sheep or goats— Approximate number in each flock to be shown encircled thus 21                  60		

Width of metalled road-way in section \_\_\_\_\_

,, of berms \_\_\_\_\_ U \_\_\_\_\_

Minimum width between parapets of bridges in the section \_\_\_\_\_

## ROAD BOARD STATISTICS OF TRAFFIC.

Form No. 2

Division\_\_\_\_\_

Road\_\_\_\_\_

Section\_\_\_\_\_

Station at\_\_\_\_\_

Date\_\_\_\_\_

Observer\_\_\_\_\_

Hours.	Motor vehicles.					Horse or bullock drawn vehicles.			Flocks of cows, sheep or goats.
	Cycles.	Cars.	Omnibuses.	Lorries, pneumatic tyred.	Lorries, solid tyred.	Two wheeled.	Four wheeled.	Bullock carts.	
A.M.									
6-7 . .									
7-8 . .									
8-9 . .									
9-10 . .									
10-11 . .									
11-12 . .									
P.M.									
12-1 . .									
1-2 . .									
2-3 . .									
3-4 . .									
4-5 . .									
5-6 . .									
6-7 . .									
Totals . .									

Note.—If skilled observers are available the lorries might be sub-divided into 2 tons or less, 2 to 5 tons, 5 tons and over.



**BOMBAY PRESIDENCY.**

Statement showing the total mileage by types and total

(provincial and local board) and from various sources in the years 1913-14 and 1923-24 to 1926-27 inclusive.

[illegible]

STATEMENT A—continued.

Year.	Expenditure on metalled provincial roads.		Expenditure on unmetalled provincial roads.		Total expenditure on provincial roads.		Expenditure on local board roads. (Information for metalled and unmetalled roads separately is not available.)		Total expenditure on local board roads.		Total expenditure on provincial and local board roads.	
	Works.	Repairs.	Works.	Repairs.	Works.	Repairs.	Works.	Repairs.	Works.	Repairs.	Works.	Repairs.
	10	11	12	13	14	15	16	17	18	19		
1913-14 .	8,44,818	10,13,723	3,79,815	2,94,515	(Rs.) 12,24,633	13,08,238	7,60,303	7,02,000	14,62,303	39,95,174		
					25,32,871							
1923-24 .	15,73,867	26,10,085	96,534	4,16,479	16,70,401	30,26,564	5,53,533	16,80,633	22,34,166	69,31,131		
					46,96,965							
1924-25 .	30,16,657	27,14,328	1,80,913	4,12,625	31,97,570	31,26,953	5,70,719	16,00,899	21,71,618	84,96,141		
					63,24,523							
1925-26 .	19,31,014	28,17,437	2,01,678	3,83,117	21,32,692	32,00,554	8,22,621	19,67,024	27,89,645	81,22,891		
					53,33,246							
1926-27 .	16,25,000	31,23,000	2,51,000	3,48,000	18,76,000	34,71,000	9,11,000	21,25,000	30,36,000	83,83,000		
					53,47,000							

# STATEMENT B.

Form referred to at A-1 (vii) of the questionnaire.

BOMBAY PRESIDENCY.

*Detail of expenditure on road maintenance in 1926-27.*

Class.	Mileage to nearest ten.			Provincial expenditure. Rs.			Local fund expenditure. Rs.			Total expenditure. Rs.	
	Surfaced.	Un-surfaced.	Total.	Surfaced.	Unsurfaced.	Total.	Surfaced.	Un-surfaced.	Total.	Surfaced.	Unsurfaced.
1	2	3	4	5	6	7	8	9	10	11	12
I. PROVINCIAL.											
A. Presidency proper . . .	5,940	760	6,700	...	...	...					
B. Sind . . . . .	60	1,520	1,580	...	...	...					
	6,000	2,280	8,280	31,23,000	3,43,000	34,71,000	...	...	...		
II. LOCAL BOARDS.											
A. Presidency proper . . .	2,790	8,180	10,970	16,25,000‡	2,51,000	18,76,000			17,73,000		
B. Sind . . . . .	40	10,830	10,870			14,16,000			6,31,000		
	2,830	19,010	21,840	Information is not available.		4,84,000	Information is not available.		3,52,000		
						19,00,000†			2,80,000		
									21,25,000		
Grand Total . . .	8,830	21,290	30,120	...	...	34,71,000	...	...	9,11,000		
						18,76,000 plus Rs. +19,00,000 grant-in-aid to D.L.B.S. for works and repairs.			31,25,000		
									9,11,000		
										83,83,000*	

\* See Explanatory Note to Statement B.  
† Provincial grant.  
‡ Out of this amount Rs. 5,08,800 represents expenditure under "60—Civil Works."

## EXPLANATORY NOTE TO STATEMENT B.

	Rs.
(a) Provincial expenditure on maintenance . . . . .	34,71,000
(b) Provincial expenditure on construction—(Original Works) . . . . .	18,76,000
(c) Provincial grant (Government grant-in-aid) to District Local Boards for repairs and original works . . . . .	19,00,000
(i) Total Expenditure from Provincial Funds . . . . .	72,47,000
(a) District Local Board expenditure on repairs . . . . .	21,25,000
(b) District Local Board expenditure on original works . . . . .	9,11,000
Total District Local Board expenditure (inclusive of Government grant-in-aid of Rs. 19 lakhs) . . . . .	30,36,000
(ii) Total expenditure incurred by District Local Boards from their own Funds (exclusive of Government grant of Rs. 19 lakhs) . . . . .	11,36,000
Thus the total amount spent from provincial funds and District Local Board funds on communications during 1926-27 is Rs. 72,47,000 plus Rs. 11,36,000= . . . . .	83,83,000

## STATEMENT C.

Statement showing the total expenditure on provincial roads under '41—Civil Works' and '60—Civil Works' during the five years ending 1925-26, with rough figures for 1926-27 and 1927-28.

Year.	Miles (inclusive of lengths within municipal limits).	Expenditure on works.	Expenditure on repairs.	Total expenditure.
		Rs.	Rs.	Rs.
1921-22 . . . . .	9,951	26,25,115	25,46,332	51,71,447
1922-23 . . . . .	9,382	24,33,002	28,08,995	52,41,897
1923-24 . . . . .	9,085	17,12,712	31,05,538	48,18,250
1924-25 . . . . .	8,925	32,99,086	31,99,600	64,98,686
1925-26 . . . . .	8,811	22,04,467	32,90,288	54,94,755
	46,154	1,22,74,382	1,49,50,653	2,72,25,035
1926-27 . . . . .	8,442	21,94,000	33,00,000	54,94,000
1927-28 . . . . .	Not available	20,99,500	35,75,000	56,74,500
	...	42,93,500	68,75,000	1,11,68,500

The average expenditure on roads per mile during the five years ending 1925-1926 comes to Rs. 590  $\frac{(27,225,035)}{46,154}$ .

The average expenditure on roads per mile during 1926-27 comes to Rs. 650.

Statement showing the average expenditure on repairs to roads per mile for each of the years 1921-22 to 1927-28—

Year.	Cost of repairs per mile.
	Rs.
1921-22 . . . . .	256
1922-23 . . . . .	299
1923-24 . . . . .	342
1924-25 . . . . .	358
1925-26 . . . . .	373
1926-27 . . . . .	374
1927-28 . . . . .	406

Note by Joint Secretary, Public Works Department, dated 3rd September 1927.

The above figures are illuminating showing as they do that cost of repairs per mile has gone up *nearly 59 per cent.* in the past 6 years, this in spite of the fact that rates have fallen somewhat. We might safely say, I think, that the *quantity* of labour and material expended on repairs has gone up by 75 per cent. in that time. These increases are the *averages* for all roads. If we took the lengths where heavy motor traffic occurs we should find a vastly greater increase, as it cost anything up to about Rs. 2,000 per mile to maintain such lengths of the present water-bound type of construction. The high cost of such lengths means that the remaining lengths are correspondingly starved and hence are deteriorating. The only solution is improved surfacing (asphalt, etc.) for the lengths subject to heavy motor traffic. Such work will be an economy after a few years' time and every mile done will reduce maintenance charges. The critical maintenance cost per mile at which the 'change-over' is economically necessary has already been exceeded in many places and the number of such lengths is increasing day by day.

STATEMENT C-1.  
Increase of Maintenance Costs.  
Provincial Roads, Bombay.

Year.	Surfaced.			Unsurfaced.		
	Miles (in tens).	Cost (in thousands).	Cost per mile.	Miles (in tens).	Cost (in thousands).	Cost per mile.
		Rs.	Rs.		Rs.	Rs.
1913-14 . . . . .	5,900	985	167	3,170	293	92.
1914-15 . . . . .	6,370	1,066	167	2,950	284	96.
1915-16 . . . . .	6,410	1,023	160	2,820	238	84.

STATEMENT C-1—*contd.**Increase of Maintenance Costs—contd.*Provincial Roads, Bombay—*contd.*

Year.	Surfaced.			Unsurfaced.		
	Miles (in tens).	Cost (in thousands).	Cost per mile.	Miles (in tens).	Cost (in thousands).	Cost per mile.
		Rs.	Rs.		Rs.	Rs.
1916-17 . .	6,880	1,113	162	2,490	207	83
1917-18 . .	6,920	1,331	192	2,530	165	65
1918-19 . .	6,900	1,359	197	2,500	184	74
1919-20 . .	6,930	1,456	210	2,340	218	93
1920-21 . .	6,930	1,851	267	2,740	319	116
1921-22 . .	7,080	2,060	291	2,640	432	164
1922-23 . .	6,700	2,387	356	2,460	360	146
1923-24 . .	6,370	2,610	410	2,480	416	168
1924-25 . .	6,280	2,714	432	2,420	413	171
1925-26 . .	6,220	2,817	453	2,360	383	162
1926-27 . .	6,000	3,123	520	2,280	348	153

*N.B.*—The above figures show that the cost of maintenance has risen from 1913-14 by Rs. 353 or 211 per cent. in the case of surfaced roads, and by Rs. 61 or 66 per cent. in the case of unsurfaced roads.

## STATEMENT D.

Reply to question No. B-1 of the questionnaire.

Year.	Private motor cars and cycles.	Taxi motor cars.	Light lorries and vans.	Buses.	Commercial heavy lorries.
1913-14 . . .	540	158	...	...	...
1914-15 . . .	558	186	...	...	...
1923-24 . .	2,115	680	216	673	6
1924-25 . . .	2,750	729	216	1,042	7
1925-26 . . .	3,192	861	237	1,652	16
1926-27 . . .	3,859	1,041	216	1,980	11

## STATEMENT E.

Statement showing lengths and incidence of metalled and unmetalled roads in the whole of the *Bombay Presidency* (including Sind).

Type of roads.	Length of roads.	Per 100 sq. miles (Total area of Bombay Presi- dency, British Districts.— 1,23,541 sq. miles).	Per 1 lakh of total population (total population 193 lakhs).	Per 1 lakh of rural population (total rural* population 147·2 lakhs).
	Miles.	Miles.	Miles.	Miles.
Metalled roads .	8,655	7·01	44·84	58·80
Unmetalled roads .	20,769	16·81	107·61	141·09

\* i.e., excluding towns containing population of 5,000 and over.

Statement showing lengths and incidence of metalled and unmetalled roads in the *Presidency proper* (excluding Sind).

Type of roads.	Length of roads.	Per 100 sq. miles (total area of Presy. proper— 77,035 sq. miles).	Per 1 lakh of total population (total population of Presy. proper— 160 lakhs).	Per 1 lakh of total rural population (total rural population in Presy. proper— 1·20·2 lakhs).
	Miles.	Miles.	Miles.	Miles.
Metalled roads .	8,553	11·10	53·46	71·16
Unmetalled roads .	8,276	10·74	51·73	68·85

Statement showing lengths and incidence of metalled and unmetalled roads in Sind.

Type of roads.	Length of roads.	Per 100 sq. miles (total area of Sind—46,506 sq. miles).	For 1 lakh of total population (total population of Sind— 33 lakhs).	Per 1 lakh of total rural population (total rural population of Sind— 27 lakhs).
	Miles.	Miles.	Miles.	Miles.
Metalled roads .	102	·22	3·09	3·78
Unmetalled roads .	12,493	26·86	396·76	462·70

## APPENDIX III.

(*Vide* question No. C-1 of the questionnaire.)

*Resolution No. 3849, dated 24th June 1927, by the Government of Bombay, Public Works Department.*

At its meeting held in Bombay on the 17th March 1927, the Committee appointed by Government to consider the question of the transfer of the control of provincial roads and buildings to the District Local Boards came to the conclusion that the Committee were not in a position to make any progress until a policy had been decided on by the Road Board with regard to roads generally. The Committee, therefore, resolved that it should be amalgamated with the Road Board. Government are accordingly pleased to approve of the proposal. The constitution of the Road Board will now be as under :—

*Chairman.*

The Honourable Sir Ghulam Husain Hidayatullah, Kt.

*Members.*

The Chief Engineer, Roads and Buildings.

The Secretary to Government, Home Department.

The Secretary to Government, General Department.

The Secretary to Government, Public Works Department.

The Secretary to Government, Revenue Department.

Mr. K. S. Framji, C.I.E.

The Commissioner in Sind.

The Commissioner, Northern Division.

The Commissioner, Central Division.

The Commissioner, Southern Division.

The Superintending Engineer, Indus Right Bank Circle.

The Superintending Engineer, Northern Circle.

The Superintending Engineer, Central Circle.

The Superintending Engineer, Deccan Irrigation Circle.

The Superintending Engineer, Southern Circle.

The Financial Adviser to Development and Public Works Departments.

The Colonel on the Staff, General Staff, Southern Command.



Sardar Bhasaheb Raisingji, M.L.C., Thakor of Kerwada.

Khan Bahadur D. B. Cooper.

Rao Bahadur S. T. Kambli, M.L.C.

Khan Bahadur S. N. Bhutto, C.I.E., O.B.E., M.L.C.

Mr. J. R. C. Badham, representing Western India Automobile Association

Mr. E. Miller, representing the Bombay Chamber of Commerce.

Dewan Bahadur K. R. Godbole.

Mr. P. R. Chikodi, M.L.C.

Mr. S. S. Naik.

The Under Secretary to Government, Public Works Department,  
Roads and Buildings (Secretary).

2. The term of membership of Mr. P. R. Chikodi, Dewan Bahadur K. R. Godbole, and Mr. S. S. Naik will last till the end of December, 1929 or till such time as the Road Board has made its recommendations to Government on the policy to be adopted with regard to roads, whichever is earlier.

# Replies to the questionnaire submitted by the Government of Bengal.

## A.—ROAD DEVELOPMENT.

	Metalled.	Unmetalled.
1. (i) Provincial (excluding Sikkim)	893	575
District Board (excluding village roads)	2,513	15,447

(ii and iii) Shown on the map.\*

(iv) Government is responsible for the provincial roads and the District Boards and other local bodies for the local roads.

(v) Government provide funds from provincial revenues for the construction and maintenance of provincial roads. Contribution has in certain cases been invited from interested public bodies towards the construction of new roads without much response. Some provincial roads have been placed in charge of District Boards for maintenance, funds for which are provided by Government. The District Boards and other local bodies maintain their own roads from their own revenues.

(vi)

	1913-14.	1923-24.	1924-25.	1925-26.
Total mileage.	Miles.	Miles.	Miles.	Miles.
Surfaced . . . . .	2,583	3,315	3,332	3,376
Unsurfaced . . . . .	13,530	15,618	15,862	15,886
<i>Total expenditure on construction.</i>				
	Rs.	Rs.	Rs.	Rs.
Provincial revenues . . . . .	3,09,208	5,72,425	4,97,479	12,15,646
District Board „ . . . . .	14,65,895	9,41,321	10,73,400	9,76,748
<i>Total expenditure on maintenance.</i>				
Provincial revenues . . . . .	8,85,326	21,43,700	22,20,454	23,86,468
District Board „ . . . . .	19,97,571	26,55,306	25,48,310	26,14,935

\*Not printed.

(vii) *Vide* statement at Appendix.

2. *Surfaced*—

$$(a) \text{ 100 square miles of area} = \frac{3400}{768} = 4.4$$

$$(b) \text{ 1,00,000 of total population} = \frac{3400}{467} = 7.3$$

$$(c) \text{ 1,00,000 of rural population} = \frac{3400}{436} = 7.8$$

*Unsurfaced*—

$$(a) \text{ 100 square miles of area} = \frac{16020}{768} = 20.9$$

$$(b) \text{ 1,00,000 of total population} = \frac{16020}{467} = 34.3$$

$$(c) \text{ 1,00,000 of rural population} = \frac{16020}{436} = 36.7$$

3.

$$(a) (i) \frac{3096}{105428} = 2.93 \text{ per cent.}$$

$$(ii) \frac{3622}{10340} = 35 \text{ ,,}$$

	<i>Rs.</i>	<i>a.</i>	<i>p.</i>
(b) (i)	0	1	1
(ii)	0	1	2
(iii)	0	1	4

4. None. The maintenance of such statistics is hardly necessary and is likely to cost more than it is worth as the traffic on many country roads is seasonal.

5. (a) For provincial roads the programme is the result of considerable deliberation with the different interests concerned.

For District Boards and local bodies, they are quite independent of each other and those bodies make their own programmes.

(b) No such system.

6. The defects in the existing system are :—

- (1) want of bridges,
- (2) weak bridges,
- (3) poor road surfaces,
- (4) insufficient width of metalling, and
- (5) sharp corners and bends.

All these defects can be remedied by the expenditure of money provided sufficient funds are forthcoming.

7. (a) The nature of development should be—

- (1) improvement and widening of road surface,
- (2) removal of avoidable corners and bends, and
- (3) strengthening of bridges and provision of new bridges across rivers or provision of adequate ferries.

1st to all arterial roads,

2nd to all roads where bus and motor traffic is already established.

3rd to other important roads.

The rate of motor development will depend on funds available for expenditure on road improvement. It will not be too much to expect that all arterial and other roads where motor traffic is heavy should be brought up to a high standard within the next 5 years.

(b) These should be financed both from loans and from current revenues.

(c) It is necessary and desirable to finance the construction of bridges and new roads by means of loans, but expenditure on improvements to road surfaces, and widening and strengthening of bridges should be financed from (1) road funds, (2) grants from Governments and (3) current revenues.

8. Motor transport will affect railways both in long and short distance haulage. The improvement of feeder roads will add to railway traffic.

The Provincial Road Board which it is proposed to form would remain in close touch with the railways running through the province, and would see that funds for road improvement were distributed for the improvement of feeder roads to railways as well as for main roads. This might be effected by having a member representing railways on the Provincial Board.

There is no arrangement existing to co-ordinate road and railway interests.

9. (a) The choice of road metal in Bengal is very limited. For the plains it is usually Rajmahal trap, for hill and terai roads the nearest boulder stone, and for many District Board roads it is Jhama metal burnt on the road side. Hence practically no use has been made of the Alipore Test House.

(b) (i) The only place where any experimental work on improved surfaces has been done is Calcutta, where the Calcutta Corporation, the Calcutta Improvement Trust and the Public Works Department have done some experimental work. They have arrived at a standard which has stood the test of time but the experiments could not extend far outside Calcutta, except to a limited extent, on account of the heavy initial outlay.

(ii) All the experiments are for roads with mixed traffic and nothing has been done to ascertain the suitability of a surface to a particular kind of traffic.

(c) There is no such exchange.

(d) Yes, it is desirable.

### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

1. The following figures will show the progress of motor transport in Bengal during the recent years :—

*Motor vehicles registered in Bengal and in use in Bengal.*

—	1913.	1914.	1923.	1924.	1925.	1926.
(a) Private cars . . . . .	3,199	3,937	10,300	12,385	14,560	17,369
(b) Motor buses, majority being privately owned.	...	...	15	35	280	448
(c) Taxis . . . . .	136	322	1,167	1,430	949	956
(d) Commercial goods vehicles	...	...	867	1,032	818	760
(e) Motor cycles . . . . .	723	966	2,445	2,863	3,144	3,482

NOTE.—The figures shown except for motor buses, taxis and commercial goods vehicles for the years 1925 and 1926 represent the total number of such vehicles registered up to the end of the year and not the number of vehicles in use. The figures of motor buses, taxis and commercial goods vehicles for the years 1925 and 1926 represent the total number of vehicles registered and re-registered on renewal of registration during the years. These figures do not include vehicles running in Bengal under registration numbers of other provinces.

2. The number of motor vehicles in Bengal have increased enormously during the last 2 or 3 years inspite of the present want of motorable roads and lack of bridges. The increase in public conveyances both of the bus and touring car type is very noticeable in districts outside Calcutta and Howrah. It would undoubtedly have been more rapid if existing motorable roads had been able to stand the strain imposed upon them. Local authorities on several occasions have been forced to restrict the number of such conveyances to save the roads, to repair which funds commensurate with the wear and tear to which they have been subjected have not been available. It is anticipated that the present rate of increase will be maintained and indeed exceeded, in future, specially if roads and bridges are improved.

The recent reduction in prices and further anticipated reductions will also help in the development of motor traffic.

3. There is no provincial tax but there are registration fees at the following rates *under Calcutta and Howrah Motor Vehicles Rules* :—

	Original fee.	Annual renewal.
	Rs.	Rs.
Heavy Motor cars and lorries . . . . .	32	16
Motor buses . . . . .	16	8
Taxis . . . . .	16	8
Private Motor cars . . . . .	16	<i>Nil</i>
Motor cycles . . . . .	4	<i>Nil</i>

*Under Bengal Motor Vehicles Rules.*

	Original fee.	Annual renewal.
	Rs.	Rs.
Heavy Motor cars . . . . .	32	16
Public conveyances not being heavy motor cars . . . . .	16	8
Private Motor cars . . . . .	16	<i>Nil</i>
Motor cycles . . . . .	4	<i>Nil</i>

*Local tax.*

*Calcutta Corporation.*—There is a carriage tax applicable to all private cars, motor buses, taxis and motor cycles which varies from Rs. 60 to Rs. 36 a year according to number of wheels and superficial area and also a cart tax applicable to all commercial goods vehicles amounting to Rs. 20, and in addition Rs. 5 per ton of the full carrying capacity of the cart.

There are no other local taxes on motor vehicles in Bengal.

4. There is no provincial taxation on motor transport in Bengal with the exception of registration fees and fees paid for driving licences. The proceeds from these sources go into provincial revenues. The Municipal tax on motor vehicles in Calcutta are merged in municipal revenues.

5. (a), (b) and (c) The whole of it should go towards expenditure on roads.

6. (a) A surcharge on petrol.

(b) and (c) Provincial Government should be free to impose provincial or local taxation and it should be left to them to decide what form that taxation should take.

7. This Government is in full agreement with the proposal that an additional duty on petrol should be imposed. The return to the provincial Government from the Central Government of funds for road improvement should not be less than the amount obtained in the province by petrol taxation so that if in a province, the consumption of petrol be higher than in another province then it will, on the basis of distribution according to consumption, receive a larger amount.

8. The Motor Industries Association strongly advocate the retention of the present system of *ad valorem* import duty.

(a) The import duty should be on an *ad valorem* basis.

(b) For registration and other fees the assessment may be on—

(1) horse power for light cars,

(2) seating capacity for public passenger vehicles,

(3) axle weight for goods vehicles.

This recommendation is subject to the opinion of this Government given in answer to question B 6(b) and (c).

9. The answers of the Motor Trades Association and Narayanganj Chambers of Commerce are in the affirmative.

It is certainly desirable to impose a maximum limit and this limit will be laid down in such bill as the local Government may frame.

10. It is desirable that a vehicle should not be taxed in more than one place in a province and the production of the receipt for taxation should be sufficient to establish exemption from taxation in any other place in the province.

As between provinces the production of a similar receipt should suffice to establish an exemption claim.

The only Acts under which a motor vehicle can at present be taxed are (1) The Calcutta Municipal Act, (2) The Rules under the Motor Vehicles Act. Any further taxation would entail fresh legislation, and the desirability of limiting the tax to one place or limiting the taxable amount must be considered when a new Act is framed.

11. The revenues from such taxation should be credited to a separate fund.

12. The following may be added on the analogy of Rule 14 of the same schedule :—

“ Subject to legislation by the Indian Legislature as regards lump sum grants to provincial Governments (or Road Boards) for these subjects.”

13. (a) The proposal is that additional revenue should be raised from central taxation for the improvement of roads; such revenue should be spent only for this purpose and others connected therewith, *e.g.*, improvements to laboratories, experiments with different road materials, distribution of literature on the subject.

The Central Board might earmark a certain amount for expenditure on arterial roads; the balance should be given to provincial boards to be spent by them on such roads and in such manner as they may consider necessary, subject to such rules regarding technical details as may be framed by the Central Board.

(b) The reply to question B 7 may be referred to.

14. This tax is already levied by the municipalities under Section 131 of the Bengal Municipal Act and Section 165 of the Calcutta Municipal Act, 1923, for vehicles within municipal areas.

15. Yes. This is levied under Bengal Act 9 of 1880. It is paid by all who pay land revenue at the rate of 6 pies per rupee. This is made over to and is spent by District Boards chiefly in roads, irrespective of class but according to local needs.

### C.—ROAD BOARDS.

1. No Road Board has yet been established in Bengal.

2. The Bengal Government agree that such a Board should be formed, provided—

(a) the allocation of revenue be made as given in reply to question B 7.

(b) Yes.

(c) This should be left in a great measure to the Provincial Board as suggested in reply to question A 8.

(d) This is very desirable.

3. It is suggested that the following might be the basis of constitution of such a Board :—

(1) Hon'ble Member in charge, Industries and Labour—President.

(2) to (11) Ten delegates from the ten provincial boards.

(12) One Engineer.

(13) One Secretary.

Functions :—

(1) Collection of funds and their distribution.

(2) Research and experimental work.

(3) Co-ordination of provincial efforts.

It should not interfere with the working of the Provincial Road Board provided their allotments are spent for the purposes of road improvement.

4. The co-ordination within the province can be best secured by a Provincial Road Board.

### D.—GENERAL.

In the opinion of this Government provincial boards should be formed whose duty should be :—

(1) To classify all roads in the province.

(2) To prepare programmes of improvements.

(3) To scrutinise projects for improvement.

(4) To allocate funds to different executive authorities.

(5) To inspect and criticise the works.

(6) To co-ordinate the different interests involved.



# APPENDIX.

Form referred to at A-1 (vii) of the questionnaire.

## BENGAL.

Detail of expenditure on road maintenance in 1926-27.

Class.	Mileage to nearest ten.			Provincial expenditure Rs. 1000's.			Local fund expenditure Rs. 1000's.			Total expenditure Rs. 1000's.	
	Sur- faced. 2	Unsur- faced. 3	Total. 4	Sur- faced. 5	Unsur- faced. 6	Total 7	Sur- faced. 8	Unsur- faced. 9	Total. 10	Sur- faced. 11	Unsur- faced. 12
1. Arterial	890	570	1460	2,004	209	2,213	...	...	...	2,004	209
				701	53	754	...	...	...	701	53
2. District Board	2,510	15,450	17,960	...	...	...	...	...	2,568	...	...
									1,084		
Total	3,400	16,020	19,420	2,004	209	2,213	...	...	2,568	2,004	209
				701	53	754	...	...	184	701	53

NOTE,—See also notes on Appendix.

## NOTES ON APPENDIX.

The average cost of construction varies with the number of bridges which play an important part in a place like Bengal and on the width of the road.

It varies between Rs. 10,000 to Rs. 30,000 per mile excluding bridges exceeding 50 ft. spans.

The average cost of maintenance of arterial roads is Rs. 2,250 per mile.

The average cost of maintenance of unsurfaced provincial roads is Rs. 370 per mile.

No figures are available to show the average cost of maintenance of District Board roads.

# Replies to the questionnaire submitted by the Government of the United Provinces of Agra and Oudh.

## A.—ROAD DEVELOPMENT.

1. A road map\* of the province, 16 miles to an inch, is attached. In general terms the roads of the province are divided into two classes :—

(i) Provincial.

(ii) Local.

and two types :—

(a) Metalled.

(b) Unmetalled.

(i) (a) are roads of major importance running through the province and those connecting large towns.

(ii) (a) are roads connecting district headquarters to tehsils and principal markets.

(i) (b) and (ii) (b) are roads forming means of communication between towns and villages of minor importance.

A scheme for the reclassification of the roads is now under consideration.

A. (1) (i) The mileage of classes and types of roads is as under :—

(i) Provincial—

(a) Metalled or surfaced	..	...	..	..	3,170
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(b) Unmetalled or unsurfaced	...	..	..	700
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(ii) Local—

(a) Metalled or surfaced	..	..	..	4,540
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(b) Unmetalled or unsurfaced	..	..	..	26,970
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Total metalled or surfaced	..	..	..	7,710
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Total unmetalled or unsurfaced	..	..	..	27,670
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## 1. (ii) The principal existing bridges are :—

River.	Place.	Road.
1. Jumna .. ..	Provincial boundary ..	Saharanpur-Amballa Road.
2. Jumna .. ..	Muttra .. ..	Bareilly-Muttra Road (railway level crossing bridge).
3. Jumna .. ..	Agra .. ..	Bombay-Delhi Road (combined road and railway bridge).
4. Jumna .. ..	Allahabad .. ..	Allahabad-Bara Road (combined road and rail bridge).
5. Ganges .. ..	Cawnpore .. ..	Lucknow-Jhansi Road.
6. Ganges .. ..	Allahabad .. ..	Allahabad-Fyzabad Road (combined road and rail bridge).
7. Ramganga .. ..	Moradabad .. ..	Meerut-Bareilly Road (railway level crossing bridge).
8. Kosi .. ..	Rampur .. ..	Meerut-Bareilly Road (railway level crossing bridge).
9. Gumti .. ..	Chapartala Ghat .. ..	Lucknow-Bareilly Road.
10. Gumti .. ..	Lucknow (Hardinge Bridge).	Lucknow-Bareilly Road.
11. Gumti .. ..	Lucknow (Iron Bridge) ..	Ditto.
12. Gumti .. ..	Lucknow (Bruce's Bridge).	Kursi Road.
13. Gumti .. ..	Lucknow (Iron Bridge) ..	Lucknow-Gorakhpur Road.
14. Gumti .. ..	Sultanpur .. ..	Allahabad-Fyzabad Road.
15. Gumti .. ..	Jaunpur .. ..	Allahabad-Gorakhpur Road.
16. Baigul .. ..	.. ..	Lucknow-Bareilly Road.
17. Garrah .. ..	Shahjehanpur .. ..	Lucknow-Bareilly Road.
18. Suswa .. ..	.. ..	Hardwar-Badrinath Road.

## 1. (iii) Principal places where bridges are required :—

River.	Place.	Road.
1. Ganges .. ..	Hardwar .. ..	Proposed Hardwar-Roorkee-Meerut Road.
2. Ganges .. ..	Garhmuktesar .. ..	Meerut-Bareilly Road.
3. Ganges .. ..	Kachlaghat .. ..	Bareilly-Muttra Road.
4. Ganges .. ..	Mirzapur .. ..	Mirzapur-Jaunpur Road.
5. Ganges .. ..	Benares .. ..	Grand Trunk Road.
6. Jumna .. ..	Kalpi .. ..	Lucknow-Jhansi Road.
7. Jumna .. ..	Hamirpur .. ..	Cawnpore-Hamirpur-Saugor Road.
8. Jumna .. ..	Chillaghat .. ..	Fatehpur-Banda-Saugor Road
9. Chambal .. ..	Dholpur .. ..	Bombay-Delhi Road.
10. Sindh .. ..	Gora .. ..	Gwalior-Jhansi Road.
11. Betwa .. ..	Jhararghat .. ..	Jhansi-Saugor Road.
12. Dhasan .. ..	.. ..	Jhansi-Nowgong Road.
13. Betwa .. ..	Hamirpur .. ..	Cawnpore-Hamirpur-Saugor Road.

River.	Place.	Road.
14. Betwa .. ..	Jhansi .. ..	Jhansi-Nowgong Road.
15. Ken .. ..	Banda .. ..	Fatehpur-Banda-Saugor Road.
16. Bhagain .. ..	} .. ..	Banda-Manikpur Road.
17. Pisuni .. ..		
18. Kali .. ..		
19. Belan .. ..	Baraundha .. ..	Mirzapur-Rewah Road. .
20. Gumti .. ..	.....	Benares-Ghazipur Road.
21. Tons .. ..	Ballia .. ..	Ballia-Ghazipur Road.
22. Gogra .. ..	Bahramghat .. ..	Bara Banki-Bahraich Road.
23. Gogra .. ..	Ajudhya .. ..	Lucknow-Gorakhpur Road.
24. Gogra .. ..	Dohrighat .. ..	Allahabad-Gorakhpur Road.
25. Rapti .. ..	Gorakhpur .. ..	Lucknow-Gorakhpur Road.
26. Baigul .. ..	.....	Meerut-Bareilly Road.
27. Bakhra .. ..	.....	Meerut-Bareilly Road.
28. Ramgunga .. ..	Bareilly .. ..	Bareilly-Muttra Road.

Government are in correspondence with the railways concerned for combined bridges for Nos. 5 and 6, whilst the following are included in the Board of Communications programme Nos. 2, 3, 5, 6, 8, 10, 11, 15, 20, 23, 25, 26, 27 and 28.

1. (iv) The authority responsible for :—

- (a) Provincial metalled or surfaced roads and provincial unmetalled or unsurfaced roads is the United Provinces Government.
- (b) Local metalled or surfaced roads and local unmetalled or unsurfaced roads is the District Board concerned.

1. (v) At present the province is financing a large scheme for the reconstruction of roads so as to bring them up to modern standards with capital borrowed for the purpose. The whole scheme of reconstruction is estimated to cost nearly a crore and a half of rupees, with a five years' programme of work, of which two have already elapsed. This money is being spent on making dustless roads of modern type in and near large cities, where traffic is so heavy that the ordinary type of road will not stand the wear and tear; only provincial roads are included in the scheme. The construction of new provincial roads and maintenance charges are met from revenue. If the project is large enough, there is no reason why new roads should not also be constructed from capital, though that is not the present practice.

The construction and maintenance of District Board roads are mainly financed out of their own general funds. But Government contribute to these, and though none of the general Government contribution to District Boards is earmarked for specific purpose, it is reasonable to assume that part of the general Government contribution is spent on the roads. Occasionally Government also make small grants to District Boards for the construction and maintenance of particular roads generally for special reasons.

1. (vi) The statement attached (Appendix I) shows the total mileages by types and total expenditure on construction and maintenance on all roads from various sources in the years 1913-14 and 1923-24—1925-26 (inclusive).

1. (vii) Please see Appendix II.

2. There are :—

- (a) (i) 7·3 miles of metalled and surfaced roads per 100 sq. miles of area.
- (a) (ii) 26·3 miles of unmetalled or unsurfaced roads per 100 sq. miles of area.
- (b) (i) 17 miles of metalled or surfaced roads per 100,000 of total population.
- (b) (ii) 61 miles of unmetalled or unsurfaced roads per 100,000 of total population.
- (c) (i) 19 miles of metalled or surfaced roads per 100,000 of rural population.
- (c) (ii) 68 miles of unmetalled or unsurfaced roads per 100,000 of rural population.

N.B.—

Area of United Provinces (British Territory) is	..	106,295 sq. miles.
Cultivated Area (1926-27) is	.. ..	.. 34,283,218 acres. or 53,568 sq. miles.
Total population (last census)	.. ..	.. 45,375,787
Rural population (last census)	.. ..	.. 40,570,322
Urban population (last census)	.. ..	.. 4,805,465

3. (a)—

(i) Total expenditure on roads from provincial revenue 38,50,000\*

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Total provincial revenue .. .. .. 12,83,33,098\* = 3·00%

\* Average of figures for 1924-25, 1925-26 and 1926-27.

(ii) Total expenditure on roads from local funds .. 30,41,500†

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Total local funds revenue .. .. .. 1,93,37,078† = 15·73%

† Average of figures for 1924-25 and 1925-26. Figures for 1926-27 not yet available.

(b) The incidence per head is as follows :—

(i) Rs.  $\frac{38,50,000}{45,375,787}$  = Rs. 0·085.

(ii) Rs.  $\frac{38,50,000}{40,570,322}$  = Rs. 0·095.

(iii) Rs.  $\frac{30,41,500}{40,570,322}$  = Rs. 0·075.

4. No road statistics are maintained. The matter was, however, considered but the anticipated cost was so heavy that the proposal was dropped.

If the Road Development Committee can suggest any economical way in which the statistics can be taken and maintained, the United Provinces Government would be willing to reconsider the question.

5. (a) The road system of the United Provinces is co-ordinated as follows :— All provincial metalled or surfaced roads are linked up with each other and with railway stations in their vicinity. As a single authority controls the whole of the provincial road system of the province, there is no risk of gaps being left. Local roads on the natural through routes are generally speaking metalled throughout. But a glance at the map\* will show that there are a large number of less important metalled local roads, which are left in the air and do not afford through metalled communication to the nearest metalled road in the next district. The outstanding example is Hardoi, which has no metalled road communication with any adjoining district. There is no co-ordinating authority which can compel local boards to link up their metalled road system with that of neighbouring districts. Government could do so by granting funds required to metal gaps. But the opportunity of doing so is few. Government cannot find the funds necessary to keep their provincial roads up to the standard which they recognise to be adequate. The Board of Communications is only advisory and can do no more than draw the attention of Government to the more inconvenient gaps which they consider should be metalled. If Government could find more money for roads, they could, through grants, co-ordinate the local road system in just the same way as the provincial road system.

(b) Generally speaking metalled roads link up with those of neighbouring provinces and States, as will be seen from the map.\*

6. The chief defects of the present road system of the United Provinces are as follows :—

(a) *Unbridged river crossings.*—During the cold weather most of these are crossed by pontoon or boat bridges, which can carry motor traffic, but always delay it, and are liable to temporary breaches if heavy winter rain falls. During the rains they are replaced by ferries and though on the more important roads motor cars can be ferried across, the crossing is generally slow and often uncertain forming a definite block for at least five months of the year.

The remedy is more funds and a definite programme to bridge all roads in turn in order of importance.

(b) *Widths of roads.*—There is a considerable length of 9' roads throughout the province ; these roads whilst suitable for bullock carts are not suitable for motor transport as they soon get rutted and broken up ; a minimum width of 12' on all except very minor roads should be insisted on. The remedy is more funds and a programme for widening roads according to classification.

(c) *Breaks in through communication.*—The system by which each District Board finances and maintains a large proportion of the roads in their own district, leads to roads being constructed from headquarters to within five or six miles of the boundary, thus often

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\*Not printed.



leaving a gap of 10 or 12 miles between one district and the next, it is not in the interest of either district to metal this short length and it therefore remains a break in through communication.

*Remedy.*—An accepted programme of classification and development under which Government would give assistance to District Boards on condition that all gaps were metalled.

(d) *Unconsidered construction and abandonment of roads.*—Under the present system a District Board can construct a road irrespective of whether it has funds to maintain the same, or abandon a road if they wish to economise.

*Remedy.*—With the proper classification, Government contribution and supervision this could be avoided, as Government grants would depend on efficient maintenance.

(e) *The condition of the roads.*—

On the provincial roads about 75 p. c. of the miles are in good condition, 12½ p. c. indifferent and 12½ p. c. bad. The reason why the whole mileage of provincial roads is not kept up to a high standard is that the funds made available to the Buildings and Roads Branch have not been sufficient to repair the damage done to the roads during the war, when expenditure was cut to the bone. Since the termination of the war the motor traffic has increased rapidly, particularly the heavy traffic represented by the motor bus. The price of materials has also increased and expenditure of money which 15 years ago was adequate to keep a road in good order with the traffic which when used it is now quite insufficient. Government have recognised the need for a higher scale of expenditure on the roads by borrowing money required for their reconstruction scheme which is costing a crore and a half rupees. But maintenance also requires a more liberal allotment of funds before the provincial roads can be brought up to and maintained at a satisfactory standard throughout.

On local roads no census has been taken of the good, indifferent and bad miles. The standard varies from district to district. But speaking generally it cannot be regarded as satisfactory. Funds are sufficient only to maintain these roads in tolerably decent order and not to the standard that is desirable. Where the local roads are really bad the causes are the lack of business capacity in some boards and the poor technical ability and entire absence of supervision over the low paid District Board engineers, who have no security of tenure and no prospects. The remedies are an improvement in the managing ability of the Boards and the provision of more funds, which, so long as District Boards decline to impose more taxation for local purposes, can only take the form of Government grants. If these grants are possible, some kind of guarantee is essential that they will be properly spent, and there can be no such guarantee unless Government engineers can inspect the local roads and assist the District Boards and their engineers with their advice as to the manner in which the work on the roads is being and should be done. It is also desirable that auditors appointed for that purpose only should be given the opportunity of making special examinations of the part of the District Board accounts which relates to the expenditure of the grants on the roads. This Government at present has the question under examination, and is inclined to think that the most suitable system is one akin to that of the Board of Communications of the Punjab.



7. (a) Development is needed on the following lines :—

- (i) The proper bridging of rivers on all important roads, this can often be done with the assistance of railways, when regarding their bridges, by making a combined road and rail bridge. Negotiations are at present in hand for combined bridges at Benares over the Ganges on the Grand Trunk Road and at Kalpi over the Jumna on the Lucknow-Jhansi-Saugor Road. No railway should decide on a bridge project without first asking the local Government whether they wish to co-operate in a combined bridge, and there should be a central body to decide any differences which may arise as to the fair allocation of cost between the railway and the local Government.
- (ii) The reconstruction of roads on modern lines in the vicinity of large towns. At present there is a five years programme for reconstructing or improving 404 miles at a cost of Rs. 1,40,39,000 and good progress has already been made.
- (iii) The metalling of gaps in inter-district communication and the development of new main roads opening out new areas, *e.g.*, Bijnor. A programme has been prepared by the Board of Communications and is being worked to, but the rate of progress is too slow.

The rate of development must depend entirely on the finances of the province.

At least Rs. 18 lakhs annually over and above the average expenditure of recent years are required even for a modest programme of development on the above lines.

(b) At present the province has undertaken a road reconstruction scheme intended to make the roads fit for the needs of motor transport which costs  $1\frac{1}{2}$  crores. The whole of this is borrowed money. The scheme deals mainly with those sections of roads on which motor transport is particularly heavy, *i.e.*, in the neighbourhood of large towns or centres. It is at present impossible to contemplate more in the existing condition of provincial finances ; and indeed the best manner of development depends entirely on the availability of funds.

(c) It is not possible to define the limits within which construction of bridges and roads should be provided by means of borrowed capital or otherwise. Ordinarily revenues are inadequate to finance any large schemes; but borrowing must depend on the capacity of the provincial revenues to bear increased debt charges. Subject to these general remarks it may be said :—

- (1) that large schemes and large individual projects should be financed from borrowed capital. Smaller schemes and individual works should be financed from revenue ;
- (2) that funds raised by special taxation earmarked for road development should be used mainly to supplement revenue in the smaller cases, and to cover debt charges in the larger cases.

This Government sees no reason why, if sufficient money is available, such funds should not be used for the maintenance of all-India roads just as much as for their reconstruction or special works such as bridges on them.

8. So far as this Government can foresee, the development of motor traffic is likely to help rather than to injure the railways. The rural population will use increased facilities for motor traffic, as they are already doing, mainly for the purpose of coming into district headquarters from large villages or tehsil headquarters, especially to attend the courts. This traffic will, for the most part, follow the routes on which there are not and are never likely to be railways. Indeed, this form of motor transport will compete rather with the horse or bullock drawn vehicle and not with railways. So far as passenger traffic is concerned, it is probable that the extension of motor transport in the form of motor buses will increase rather than decrease the income of the railways by providing a feeder system for wayside stations, and so encouraging people to use the railways who might not otherwise undertake a railway journey or might choose another route which, but for the existence of the motor bus, could be followed with less time and trouble by means of a horse or bullock drawn vehicle. For goods traffic motor transport is never likely to be able to compete with the railways. Indeed, so long as time is of little object the motor cannot compete for this form of traffic with the bullock cart. The villager must keep his bullocks for his agriculture, and the extra cost to him of using them for transport is negligible, while for the motor the unloaded run greatly adds to the cost of the loaded run.

The development of motor transport might also make it possible for the railways to close short branch lines, which are not profitable but are kept open by the railways for the convenience of the public. The effect of this, however, is not likely to be great, since the railways can always demand a guarantee before opening a line for local traffic.

On the other hand, there are certainly cases in which the existence of motor buses may reduce the passenger traffic on railways, because it can short-circuit the route which the railway must follow. An instance is the motor bus service between Saharanpur and Dehra Dun. In such cases it is always open to the railway company to open its own motor service, but it would probably not find it profitable to do so. Such short-cuts are however only possible where the railway must, from the configuration of the country, take a circuitous route, and this occurs only where the country is hilly. Such areas where a railway is practicable at all are so few in the United Provinces that the effect of short-cuts is negligible.

In this province the Board of Communications is available for the co-ordination of road and railway transport. The agents of all the main railways which traverse the province are members of the Board of Communications, which would certainly bring to the notice of Government any tendency which it foresaw for motor transport to affect the interests of the railways adversely. So long as railways remain a central and roads a provincial subject, it is difficult to see how any co-ordinating authority is possible which can be more than of a merely advisory character.

9. (a) The Government Test House, Alipore, is referred to frequently for tests on the desirability and hardness of various kinds of road metal.

The Chief Engineer suggests that their facilities for research work in bitumen, tars, etc., be improved. The results received regarding tests on flux were most unsatisfactory and misleading owing to their ignorance of standard tests for this material.

(b) (i) Experimental lengths of road of the following materials have been put down and the results under different traffic conditions are being watched with care :—

(1) Cement concrete	.. .. .	1.25 miles.
(2) Asphaltic concrete T. R. A. and Mexphalte	.. .. .	2 miles.
(3) Asphaltic macadam T. R. A.	.. .. .	8 miles.
(4) Asphaltic grout T. R. A. Mexphalte pitch and tar	.. .. .	6.5 miles.
(5) Paint T. R. A., Spramex, Road Board tar, mexaco		7.75 miles.

Up to March 31, 1927, the length shown against each had been completed.

(ii) Particulars of the methods and costs are printed annually and issued to other provinces upon request.

The results obtained are utilised in determining future programmes of work.

A machine for measuring the wear of road surfaces has recently been ordered and the results should be of great interest.

(c) No. There are no arrangements. One province has to rely on the courtesy of another for circulating information. This Government thinks that there should be a central body for co-ordinating and circulating the results of experiments and that there should be an annual or biennial conference of technical representatives from all provinces to discuss matters of road construction and maintenance.

(d) If it is decided to have a Central Road Board, the technical expert attached to it should undertake the work of co-ordinating and distributing the results of experiment and research. *Prima facie* it would appear that experiment and research should be centralised to save expense. But this Government is advised by its technical experts that the conditions of material, climate, etc., vary so much in each locality that a centre of research would be of little value. They therefore think that each province should arrange its own research and carry out its own experiments, though the technical expert to the Central Board should be available for personal inspection and advice in all provinces. Since the results of experiment and research in each province are of value to all the others, the matter is an all-India one and is therefore a fair charge on any assignment which may be made from central revenues for road purposes.

#### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

1. The statement below shows the numbers of motor vehicles of all classes mentioned, registered in each of the years 1913-14 and from 1923-24 to 1926-27 :—

	1913-14.	1923-24.	1924-25.	1925-26.	1926-27.	Percentage increase in 1926-27 over 1913-14.	Percentage increase in 1926-27 over 1923-24.
1. Private cars	.. 182	462	501	676	795	337%	72%
2. Motor buses	.. 13	166	234	332	538	4,038%	224%
3. Taxis	.. 11	143	161	272	243	2,109%	70%
4. Commercial goods vehicles.	1	90	121	111	124	12,300%	38%
5. Motor cycles	.. 107	178	149	221	202	89%	13%

The percentages given in the statement show that in 1926-27 the percentage increases in registration over the figures for 1913-14 are for :—

(i) Private cars	..	..	..	..	..	337%
(ii) Motor buses	..	..	..	..	..	4,038%
(iii) Taxis	..	..	..	..	..	2,109%
(iv) Commercial goods vehicles	..	..	..	..	..	12,300%
(v) Motor cycles	..	..	..	..	..	89%

whereas the percentage increases in registration over the figures for 1923-24 are for :—

(i) Private cars	..	..	..	..	..	72%
(ii) Motor buses	..	..	..	..	..	224%
(iii) Taxis	..	..	..	..	..	70%
(iv) Commercial goods vehicles	..	..	..	..	..	38%
(v) Motor cycles	..	..	..	..	..	13%

The large percentage increase in motor buses is very notable and this form of transport between headquarters of districts, market towns, etc., is becoming increasingly popular. The wear and tear on the roads used is considerable when compared with that of days when such transport was by ekkas, etc.

A road map\* of the province showing all chief motor bus routes is appended.

There are no companies owning a large number of motor buses. The motor bus service on each route consists usually of one or two vehicles belonging to an individual, who has had the enterprise to take advantage of the opportunity for profit opened by the popularity of this form of travelling and its comparative immunity from taxation.

2. The safest guide to prospects of further development is given by the figures in the answer to question B.-1. The increase in the number of private cars and motor buses has been steadily maintained, and it is safe to foretell that this will be maintained since the price of these vehicles has fallen to a figure which brings them within reach of the man with a moderate income, and the import duty has decreased to a more reasonable figure. Even if the price does not fall further improvement in the condition of the roads will lengthen the life of the machines and therefore make their use cheaper as well as adding to the comfort of travelling in them. The number of private cars is still extremely small when compared with the number of persons living in the province who can afford to keep them. The number of motor buses also is still only a fraction of that which could ply profitably on the roads, and is so small compared with the prospective demand for this kind of transport that the motor bus service can still be said to be only in its infancy. Taxis are little used except in the larger places frequented by the sight-seer, and a fall in their number in 1926-27 is a fair indication of the prospects of their more extensive use. The figures for commercial goods vehicles have remained stationary during the last three years, and no considerable increase in their number is likely because they cannot, for the reasons given above, compete with the bullock cart or the railways. Motor cycles have also proved less popular in the year 1926-27

than in the previous year. Nor is their increased use likely. The class which uses them extensively in England does not exist in India, and they are not well-suited to local conditions in this country.

3. The following special taxation is imposed on motor transport in this province :—

(a) *Provincial*—(Registration).

(i) Private motor vehicles—

	Rs.
For each heavy motor vehicle .. .. .	60
For each light motor vehicle .. .. .	30
For each motor cycle .. .. .	10

No fee is payable for registration renewal.

(ii) Public motor vehicles—

	Rs.
For each motor lorry .. .. .	120
For each motor bus being a heavy motor vehicle .. .. .	60
For each motor cab or a motor bus being a light motor vehicle .. .. .	30
For a motor cycle .. .. .	10

The period of registration for public motor vehicles is 12 months and upon registration renewal, the same fees are payable.

(iii) Driving licenses—

	Rs.
For all private motor vehicles .. .. .	5 each.
and renewals, yearly .. .. .	2 „
For all public motor vehicles .. .. .	10 „
and renewals, yearly .. .. .	5 „

A heavy motor vehicle means a motor vehicle exceeding two tons in weight unladen.

All the above fees are credited to provincial revenues.

(b) *Local*—

(i) 32 municipalities out of 85 levy a vehicle tax.

(ii) 19 municipalities out of 85 levy terminal tax and toll.

(iii) 33 municipalities out of 85 levy octroi duty.

(i) These taxes in the five most important municipalities are as follows :—

Name.	Motor vehicles.	Ordinary vehicles.
	Rs. A. P.	Rs. A. P.
Lucknow .. Up to 10 H. P. per wheel ..	0 12 0 p. m.	0 4 0
		p. m. per wheel.
10 H. P.—20 H. P. per wheel ..	1 2 0 p. m.	
More than 20 H. P. per wheel ..	1 8 0 p. m.	



Name.	Motor vehicles.			Ordinary vehicles.		
			Rs. A. P.			Rs. A. P.
Cawnpore ..	Private cars	...	48 0 0			18 0 0
			p. a.			per four wheel-
	Cars for hire	...	100 0 0			ed carriage
			p. a.			per annum.
	Lorries	...	144 0 0			0 6 0
			p. a.			
Allahabad ..	Up to 20 H. P.	...	4 8 0			per wheel per
			p.m.			month.
	21 H. P.—30 H. P.	...	6 0 0			
			p. m.			
	More than 30 H. P.	...	9 0 0			10 0 0
			p. m.			
Benares ..			25 0 0			p. a. per four
			p. a. each.			wheeled car-
						riage.
						12 0 0
Bareilly ..			24 0 0			p. a. each four
			p. a. each.			wheeled car-
						riage.

There is also a tax on motor cycles which in Allahabad, for example, is—

Rs. 2-4-0 with side car or trailer, and

Rs. 1-8-0 without, per mensem.

(ii) Terminal taxes vary in each municipality. Agra charges Rs. 5 for a cycle and Rs. 25 for a car, whereas Etawah charges Rs. 7 only for a car.

Terminal tolls also vary, being for—

Lorries .. .. Re 0-6-0 to Rs. 9 per ton or  
Re. 1 to Rs. 50 each.

Cars .. .. Re. 0-8-0 to Rs. 10 each.

Road tolls also vary being for :—

Lorries .. .. Re. 0-9-0 to Rs. 3 each *plus* 0-8-0 per passenger.

Cars .. .. Re. 0-8-0 to Rs. 2 each *plus* Rs. 2 per passenger.

All local taxes and tolls are credited to the revenues of the municipalities concerned.

In 1923 the local legislature passed an Act, namely, the U. P. Act No. VI of 1923, imposing a tax on motor vehicles. But they accepted it only for one year. A copy of the Act\* was given to the Committee when they visited Allahabad. This tax yielded Rs. 1·97 lakhs during the year in which it was enforced. It is estimated that with better arrangements for collection and with the increase in motor vehicles, a similar tax now-a-days should yield Rs. 5 to 6 lakhs. There is at present no provincial taxation on motor vehicles themselves.

4. The proceeds of none of these taxes or fees are specifically allocated to expenditure on roads. Of the provincial tax of 1923-24, 60% was given to District Boards for expenditure on roads and the remainder, though not specifically so allocated, enabled Government to spend more money on provincial

roads, though the amount available was not sufficient to make any appreciable difference.

5. From the point of view of financial theory, the method of earmarking a particular revenue for a particular expenditure is unsound ; while from the point of view of the present inquiry the main objection is that in practice this method often defeats its own hand. The object of the method is to enable Government to allocate more money to the special object than they do already. But when there are many other needs of other kinds, the temptation is always to restrict the expenditure on the special object to the proceeds of the special taxation, and the temptation is felt not only by the executive but by the legislature, specially if the legislature is more interested in other needs than the need of the special object. This Government thinks that that will be the case in these provinces. There are many other provincial needs, and there is a tendency, specially among our legislators, to underrate the importance of roads. Government thinks, however, that this tendency, could be kept in check if it was made clear to the legislature that a grant from central funds was conditional upon maintenance of the normal expenditure on roads from the provincial revenues. That would be clear if it were made a condition of receiving an assignment (a) that the existing recurring expenditure on maintenance of roads is not to be decreased, (b) that non-recurring expenditure on the construction of roads should not fall below the average expenditure of a certain number of years. If these conditions were enforced, it is most unlikely that the legislature would face the loss of the extra money, which the province requires so badly for its roads, by refusing to vote the normal grants from provincial revenues. It recognises that the Government of India will be reluctant to give assignments without some such conditions, in just the same way as it would not be prepared to make assignments to District Boards for road development without them. It thinks that of all possible allocations that of a tax on motor transport to road development is the least objectionable from the theoretical point of view ; and that from the practical point of view allocation on the conditions mentioned above is desirable and should be adopted.

6. With many different forms of taxation on motor vehicles there is a risk that the total sum of taxation may reach so high a level that it may strangle the trade, and so kill the goose that lays the golden eggs. The ideal arrangement would be to have a single form of taxation, and the method which is fairest and least liable to evasion is taxation on petrol to be levied by the Central Government and distributed to provincial Governments and through them to local bodies, all other forms of taxation on motor vehicles, whether provincial or local, being prohibited. It would then be necessary to compensate local bodies for the loss of this potential source of income, and Government does not anticipate that there would be any difficulty in devising a fair method of compensation. The grave practical objection to this system is that it would evoke strong criticism on the interference with the right of provincial and local authorities to impose taxation in their own way. It is therefore undesirable to apply this method of a single tax in its perfect and complete form. But if the trade is to be protected from over-taxation, this Government does not see how it is possible to avoid some

restriction on the power of the provinces and local bodies to impose unlimited taxes on motor transport. But limitation is a very different matter from total prohibition, and in view of the financial benefits which would be derived from the proposal to levy an extra central excise on petrol the opposition to imposing some limitation on the provincial and local power of taxation would probably not be so strong that it ought not to be faced.

As a way out of the difficulty it has been suggested that there should be a single motor tax based on petrol—the Central Government to impose it at a rate sufficient to cover expenditure on all-India roads, the provinces to add a further tax at a rate sufficient to cover expenditure on provincial and local roads. This type of tax is the French “centimes additionnels”. It has the disadvantage that two authorities rely on the same source of revenue, and one of them by over-taxation may damage the other’s revenue. In France where the two authorities are the nation and local bodies this difficulty is avoided by the nation limiting the number of centimes additionnels that a local body may impose. But here we have the difficulty that the provinces would probably require more by centimes additionnels than the Central Government required by the original tax. Further if this form of taxation were to be adopted it would be necessary for the whole of it to be collected by the Central Government. It would also still be necessary for the Central Government to limit the provinces’ power of taxation. This Government does not therefore consider that this form of levying a single tax on petrol would have any advantage over the alternative system whereby the whole of the tax on petrol would be levied and realised by the Central Government and distribution made to the provincial Governments and through them to the local bodies to compensate them for the restriction of their power of taxation. This Government thinks therefore that the following taxes on motor transport should be allowed with necessary limitations on the provincial and local power of taxation—

- (1) A customs or excise duty on petrol which should be the main tax. It should be imposed and collected centrally but should be apportioned between the various provincial authorities.
- (2) A customs duty on import of motor vehicles and accessories which for the reasons given subsequently should be kept as low as possible. This would be imposed and realised centrally and the proceeds would be retained by the Central Government.
- (3) Registration and licence fees imposed and collected provincially. These are more important administratively than financially. The registration fee should be paid once only and an annual renewal of the registration should be free of charge; the licence fee should be imposed on the driver and the licence should be renewable annually on payment of the same amount as the initial fee.
- (4) That there should be a tax on vehicles imposed and realised by municipalities, the extent of the tax being strictly limited by the Central Government.

7. This Government favours the proposal that an additional duty should be imposed on petrol. It regards a petrol tax as the fairest form of taxation on motor transport, because it automatically adjusts payment to service,



and imposes the heaviest impost on the high-powered luxury car and on the heavy lorry which exacts the severest wear from the roads. It considers that the ideal taxation of motor transport would be confined to a petrol tax and that the nearer the method of taxation employed approaches this ideal the better it will be.

It also thinks that if the petrol to be taxed were used only for traffic on the roads which are to benefit from the grants given from the taxation, consumption would be the fairest basis of distribution. But this is not the case. Municipal roads are excluded from the scope of the questionnaire, while such cities as Calcutta, Bombay, Madras and Rangoon have a consumption so large that it would weigh the scales unfairly in favour of the provinces in which these cities are situated. Further there is a heavy consumption of petrol for motor boats in the seaport towns and in the waterways of provinces which have the benefit of river transport. These factors are of sufficient importance to make consumption unfair as a basis of distribution. The touring sub-committee suggested the following basis :—

One-fourth in the ratio that the area of the province bears to the total area of India,

One-fourth in the ratio that the total population of the province bears to the total population of India,

One-fourth in the ratio that the total motor vehicle horse power registered in each province bears to the total horse power registered in India, and

One-fourth in the ratio that the total expenditure from provincial and local revenues on all roads in the province bears to the total of such expenditure in India.

Except in one respect this formula gives its proper value to each of the factors which should determine the basis of distribution, namely, the existing and prospective mileage of road and use of motor transport, and the extent of provincial self-help. But by taking total area it would give undue preference to provinces with large tracts of forest or desert which neither have nor require roads. This defect would be removed if cultivated area were substituted for total area. The difference in the ratios of total and cultivated area is shown in the statement below :—

Province.	Area— sq. miles.	Cultivated area—acres (thousands).	Ratio each province to India.	
			Area.	Cultivated area.
Madras .. ..	142,260	33,834	13·9	15·1
Assam .. ..	53,015	5,801	5·2	2·6
Bihar and Orissa .. ..	83,161	24,252	8·1	10·8
Central Provinces .. ..	99,576	24,870	9·8	11·1
Bengal .. ..	76,843	23,388	7·5	10·4
Bombay .. ..	123,621	31,917	12·1	14·2
Burma .. ..	233,707	16,488	22·9	7·4
Punjab .. ..	99,846	29,412	9·8	13·1
United Provinces .. ..	106,295	34,283	10·4	15·3
Total .. ..	10,18,324	2,24,245	..	..

If this change were made, this Government would accept the formula as the fairest that can be devised.

8. For import duty the most appropriate method of assessment is *ad valorem*. The rate has been very high till this year and is still high. A high duty adds greatly to the initial cost of the car and so by discouraging the prospective purchaser cramps the development of motor transport more than slightly higher recurring running costs, which would result from an increased tax on petrol. This Government would therefore welcome the reduction of import duty to a minimum.

For registration and other fees there are objections to every method of assessment. *Ad valorem* imposes an undue recurring burden on the better type of car unless annual revaluation is allowed ; and if it is, evasion or dissatisfaction becomes common. Horse power varies according to the method of calculation. Weight and wheel track to be equitable must be sub-divided to an extent which makes them too complicated ; number of wheels alone do not make sufficient distinction between widely different types ; seating capacity is open to the same objection as number of wheels, and in addition is often difficult to determine, as in the 4—5-seater : it also unduly favours the heavy chassis with a 2-seater body. Taking all the factors into consideration this Government thinks that for registration the fairest method is a lump sum levied only initially on each heavy and light vehicle, a heavy one being defined as one which weighs over two tons unladen ; for licence fees a fixed sum determined separately for private and public vehicles, followed by annual renewal at a lesser fixed rate ; and for other taxes a quarterly or half-yearly sum per wheel varying according to horse power.

9. If there is to be special central taxation for road development, the Central Government should take power to limit the maximum taxation to be imposed by provincial and local authorities. If this is not done there is grave risk that the motor trade may be strangled and the development of motor transport retarded. For the service which he gets the taxation of the motorist in India is already in spite of the recent reduction in import duty unduly high, and is presumably a relic of the days when the motor was regarded as a luxury, which it is not for the great majority of persons who use it. For such limitation this Government believes that it would be necessary to obtain statutory authority ; but this should not present any insuperable difficulty.

10. It has already been said that the ideal arrangement would be to allow each authority to levy one sort of tax, and that the limitation of the extent to which each authority should have power of taxation is essential. If this is done reciprocal exemption as between provincial and local authorities becomes unnecessary. If it is not, such exemption either partial or total becomes desirable. Provision was made for it in the United Provinces Act VI of 1923 in Section 11 (3) by giving municipal taxation partial precedence over provincial ; and it would probably be necessary to follow the same line again.

Reciprocal exemption as between provincial and provincial taxation in which would be included provincial and Indian State is so clearly to the advantage of the public in both territories that it should not be difficult to secure it by agreement on the basis of the domicile of the vehicle. Reciprocal exemption as between local and local bodies would be a matter of provincial legislation and is so clearly desirable that the Legislative Council should show no

reluctance to enact it. Only simple alterations in the existing rules would be necessary.

11. There should either be a separate fund or a separate account. There is no particular difficulty in either alternative. The separate account would probably be the simpler and consequently the more desirable.

12. This is a question for the legal advisers of the Government of India.

13. (a) The central fund should be available not only for the cost of annual work on roads and bridges but to meet the debt charges of a loan taken for such work. This is one of the directions in which such additional revenue will prove most useful. If the funds thus made available are not sufficient to go very far with the capital cost, they will certainly be sufficient to bear debt charges and so will enable provinces to face capital cost. There should however be a guarantee that the revenue thus acquired will continue as long as the loan subsists, or that in the alternative it will be met from other central resources.

As regards the form of distribution the best system would be block grants with separate accounts of expenditure. The allocation for specific roads or bridges would probably cause trouble since it is not always possible to spend according to the allocation.

(b) This question has already been answered in the reply to question B.-7.

14. In theory the answer is in the affirmative. The motor alone should not pay for road communications; particularly as the heavily laden bullock cart with narrow iron tyres does more damage to the roads in and around towns than motor transport. But when an attempt is made to devise a suitable form of taxation for vehicles other than motors, acute difficulties arise. Indeed the Board of Communications has examined the problem for many years without finding a satisfactory solution. Its latest proposal is that there should be an annual tax as follows:—

				Rs.
(a)	Carts domiciled in villages	..	..	.. 6 per annum.
(b)	Carts domiciled in towns	..	..	.. 12 „
(c)	Foreign carts	..	..	.. 6 „

If a tax is levied on carts there is no reason to exempt horse drawn vehicles. But the imposition and collection of such a tax would require a large agency which does not exist, and it would fall mainly on the agriculturist whose rent already forms the basis of the land revenue, and there are strong reasons against taxing him further. Probably the only feasible method of taxing all vehicles is by levying tolls. This involves toll bars, which this Government does not favour, though they believe that the Madras Province uses them. The system is open to the serious objection that it requires the employment of low-paid officials of the type of the octroi muharrir, who would not be slow to exploit the villager. As an innovation such a system would be intensely and deservedly unpopular. But where the system of tolls already exists, namely, on ferries and bridges of boats over rivers, this Government favour its retention

at any rate for a period, when a permanent bridge replaces the temporary floating one. There would be no opposition to the levy of toll at such places, and it is illogical that when an improvised river crossing is replaced by a proper one and the road service is improved, the payment which has from time immemorial been levied for the inferior service at the same place should be remitted. A toll on new permanent bridges would be of material help in the payment of debt charges incurred in their construction, and would therefore facilitate the removal of one of the main defects in the road system.

Another form of taxation which this Government is now examining to provide funds for roads is a tax on brick fields. Carts laden with bricks do great damage to the roads in the vicinity of large cities, a few miles outside which brickfields are numerous. It is but fair that the brick trade should bear some of the cost of maintaining the road from which it benefits, and which it rapidly wears out. Government does not anticipate difficulty in finding a suitable form for such a tax, nor in getting the legislature to accept it provided an undertaking is given that the proceeds will be devoted to the roads.

15. There is no road cess in this province.

#### C.—ROAD BOARDS.

1. A Board of Communications was formed in 1919 consisting of the following members :—

Member of the Board of Revenue.

Chief Engineer, Buildings and Roads.

Chief Engineer, Irrigation Branch.

Director of Industries.

Director of Agriculture.

Chief Conservator of Forests.

Representative of Upper India Chamber of Commerce.

Representative of United Provinces Chamber of Commerce.

Finance Secretary.

Three members of the Legislative Council.

Agents of all railways in the United Provinces or their representatives.

Executive Engineer, P. W. D. (Buildings and Roads).

The present functions are purely advisory on the following lines :—

(i) Prepares programme for—

(a) Railway construction.

*President.*

*Members.*

*Secretary.*

- (b) Road construction.
- (c) Bridge construction.
- (ii) Considers demands from District Boards and municipalities for grants-in-aid or loans and makes recommendations to Government on them.
- (iii) Considers questions of taxation.

Its value in developing the road system in the Province has been very slight, as though it can consider and recommend improvements, it has no power to see that they are carried out. It is felt by all members of the Board that were the Board given a definite annual sum from which it could make definite grants-in-aid to district or municipal boards to develop or improve their road systems, its value as a Board would be greatly enhanced and that it would then be of some definite value.

This Government is inclined to think that the system on which the Punjab Board of Communications is organized is good : but if it is adopted there is no reason why the Buildings and Roads engineers should not be used instead of the special engineers whom the Punjab Board employs.

2. For (a) a Central Road Board is essential. If (a) does not materialise the utility of a Central Road Board would be greatly reduced, as it would become merely advisory and so in the position of the Provincial Road Board. But even so, it would be desirable for (b), (c) and (d).

3. The constitution of a Central Road Board should consist of:—

Official of the Government of India	..	..	..	1
Members of the Legislative Assembly	..	..	..	2
Member of the Railway Board	..	..	..	1
Technical expert	..	..	..	1
Representative of the chambers of commerce	..	..	..	1
Secretary	..	..	..	1

with powers to co-opt chief engineers of provinces when their services are required and members of provincial legislatures.

Its functions should be to :—

1. Classify and approve the routes of Class I-(a) trunk roads.
2. Consider and co-ordinate the programmes for road development of provincial Governments.
3. Approve the programme of expenditure by provincial Governments of funds contributed for central taxation.
4. Co-ordinate the technical experience and research in road construction.
5. Consider existing acts and ordinances and recommend amendments.
6. Co-ordinate transport between roads and railways.

4. In the absence of a Central Road Board the best method of co-ordination would be periodical meetings of chief engineers of the provinces.



## D.—GENERAL.

(1) It is suggested that any action which the Committee could take to persuade the oil companies to reduce the price of petrol in India, which is unanimously regarded as exorbitant in comparison with the English price, would not only be a public service, but would also make it easier to impose an excise duty on petrol of sufficient magnitude to provide a substantial sum for road development.

(2) On the important question of classification, the Chief Engineer has written the following note which this Government considers deserving of consideration :—

From a perusal of the notes\* on Highway systems outside United States, I think it will be agreed that some system of definite classification for roads is required in India and I further urge that the classification should be uniform in every province, though the method of financing each class, except class I, may be left to the provinces to decide. In order that there may be some basis of discussion I suggest the following classification :—

CLASS I.—*Imperial roads.*

Consisting of :—

- (a) Roads connecting one province or Indian state to another.
- (b) Roads linking up important military stations.
- (c) Roads connecting pilgrim centres of national importance with the main road system or railways.

These roads should be constructed, improved and maintained by funds from the central revenue, through the agency of the provincial P. W. D.

Classification and expenditure to be approved by the Central Road Board, on proposals submitted by the Provincial Road Board through the Minister concerned.

CLASS II.—*Provincial roads.*

Consisting of :—

- (a) Roads connecting the provincial capital to all divisional headquarters.
- (b) Roads connecting divisional to district headquarters.

To be constructed and improved either from provincial revenue or from central and provincial revenue on a basis of 50 : 50 ; in the event of there being any surplus central funds after financing Class I roads.

Maintenance to be from provincial revenue.

Agency to be the provincial P. W. D.

Classification by Provincial Road Board, but in the event of any central contribution being available the approval of the Central Road Board will be required.

CLASS III.—*District roads.*

Consisting of :—

(a) Roads connecting district headquarters to tehsil headquarters or large markets.

(b) Roads connecting one district with another.

To be constructed and maintained from provincial and local revenue on a 50 : 50 basis, through the agency of the District Board engineering staff, but under the supervision of the Provincial Road Board.

Classification and distribution of grants will be approved by the Provincial Road Board.

CLASS IV.—*Village roads.*

Consisting of all roads not included in classes I, II or III.

To be constructed and maintained from local revenue through the agency of the District Board engineering staff.

(3) This Government notes that the questionnaire refers to extra-municipal roads only. They infer that the Committee do not contemplate the grant of any part of the contribution from the central fund to municipalities. They are doubtful of the justice or wisdom of their exclusion. Part of the petrol which it is proposed to tax is used in municipalities on their roads and there does not therefore appear to be any reason why they should not receive their fair share of the proceeds. If the power of municipalities to levy taxation on motor vehicles is in any way curtailed they must receive some compensation. If they do not, opposition to the general scheme is likely to be stronger ; and there will be no answer to the obvious argument which the municipal representatives will adduce.

# APPENDIX I.

[Vide QUESTION A.-1 (vi).]

Total mileage by types and total expenditure on construction and maintenance on all roads and from various sources in the years 1913-14 and 1923-24 to 1925-26 inclusive.

Expenditure Rs. 1,000's.														Remarks.
Year.	Mileage to nearest ten.			Construction*.				Maintenance.				Grand total.		
	Sur-faced. 2	Unsur-faced. 3	Total. 4	Pro-vincial. 5	Loan. 6	Local fund. 7	Total. 8	Pro-vincial. 9	Loan. 10	Local fund. 11	Total. 12			
													13	
1913-14	7,010	25,100	32,110	4,07	..	8,80	12,87	14,99	..	15,43	30,42	43,29	Owing to inaccuracy of return of mileage during 1925-26, the mileage figures for 1926-27 have been taken for 1925-26.	
1923-24	7,540	27,570	35,110	5,33	2,13	5,09	12,55	26,11	..	23,90	50,01	62,56		
1924-25	7,580	27,560	35,140	7,62	3,75	3,84	15,21	31,96	..	23,73	55,69	70,90		
1925-26	7,710	27,670	35,380	4,02	34,86	6,95	45,83	30,48	..	26,31	56,79	102,62		

\*Including reconstruction.



FORM REFERRED TO AT QUESTION A.1 (vi).

UNITED PROVINCES.

Details of expenditure on road maintenance, in 1926-27.

	Mileage to nearest ten.			Provincial expenditure Rs. 1,000's.			Local expenditure Rs. 1,000's.			Total expenditure Rs. 1,000's.	
	Sur- faced.	Unsur- faced.	Total.	Sur- faced.	Unsur- faced.	Total.	Sur- faced.	Unsur- faced.	Total.	Sur- faced.	Unsur- faced.
1	2	3	4	5	6	7	8	9	10	11	12
1. Provincial.											
Maintenance .. ..	3,170	700	3,870	29,16 (Rs. 920 per mile).	4,42 (Rs. 631 per mile).	33,58	..	..	..	29,16	4,42
Original works .. ..	..	..	..	2,72*	1,02†	3,74	..	..	..	2,72	1,02
2. Local.											
Maintenance .. ..	4,540	26,970	31,510	..	..	..	19,13	6,29 and in addition sum of 6,95 on non-re- curring and original works for the sub-divi- sion of which into cols. 8 and 9 material is not available.	25,42	19,13	6,29
Original Works .. ..	..	..	..	..	..	..	..	..	..	..	..

Note.—Expenditure incurred against loan account is shown separately in the appended list.  
\*Does not include interest charges on loan, see attached list.  
†This was spent on metalling new roads.

# *Details of expenditure on reconstruction of roads in 1926-27.*

	Mileage to nearest ten.			Provincial expenditure Rs. 1,000's met from loan.			Remarks.
	Surfaced.	Unsurfaced.	Total.	Surfaced.	Unsurfaced.	Total.	
—							
Maintenance ..	..	..	..	..	..	..	
Original works ..	..	..	..	24,15	1,68*	25,83†	<p>* This amount was spent on metalling new roads.</p> <p>† In addition to this amount interest charges Rs. 13,40 were paid on the loan.</p>

## Replies to the questionnaire submitted by the Government of the Punjab.

### I.—GENERAL.

Although the questionnaire has not asked for any general account of road development in each province it is thought that a brief note on the history of road policy in the Punjab may be of assistance.

Up to 1854 the agency for the construction and maintenance of the principal roads in India was Military Boards, one for each Presidency. By this system the general control of roads in Bengal and Northern India was under the Military Board at Calcutta. In 1849 Captain Napier (afterwards Lord Napier of Magdala) organized a department for carrying out public works in the recently acquired Punjab, and this proved so successful that in 1854-55 the Military Boards were superseded by Departments of Public Works in all the provinces under the general control of the Government of India.

(2) The Board of Administration which then constituted the local Government classified the roads into :—

- (a) Military roads.
- (b) Roads for external commerce.
- (c) Roads for internal commerce.

The present Grand Trunk Road came into class (a).

(3) For 30 years the Department continued responsible for practically all the road work in the province, but after 1883, in pursuance of the policy of Local Self-Government, which resulted in the Municipal and District Board Acts of 1884 and 1886, respectively, a number of provincial roads were handed over with fixed mileage grants to local bodies for maintenance.

(4) *Pari passu* with this transfer of works a reduction was proposed in the P. W. D. establishment which would release Rs. 75,000 for supplying local bodies with the means of efficiently supervising the transferred works.

(5) Amongst the roads thus transferred were :—

- (a) The Delhi Muttra Road miles 29—58.
- (b) The Delhi-Sirsa Road miles 17—158.
- (c) The Amritsar-Pathankot Road 70 miles.
- (d) The Wazirabad-Sialkot Road 22 miles.

(6) Reference may here be made to the system under which, in order to save maintenance charges, whenever a railway was built parallel to a metalled road the latter was converted into an unmetalled one. This fate overtook the Ambala-Jagadhri Road in 1879 and the Amritsar-Pathankot and much of the Delhi-Sirsa Road in 1885. Proposals were put forward to scrap the Ambala-Kalka Road as late as 1899, but this the Government of India refused to

permit on the ground that it was of military importance, but at the same time they declined to accept the cost of upkeep as a debit against military funds. This scrapping of roads parallel to newly constructed railways however was accompanied by a policy to make and improve the station approaches.

(7) In 1888 Government laid down the general principle that all important works should be carried out by professional engineers leaving local boards to entertain their own establishments to carry out minor works and repairs.

(8) The transfer of work to local bodies did not prove satisfactory, partly because it involved two sets of officers covering the same ground and partly because the roads, which had been handed over, were found to be deteriorating, and in 1893 an attempt was made to unify the establishments. A number of the provincial roads were taken back by the P. W. D. while the District Boards also asked for some of their own roads to be taken over.

(9) In 1896 a Committee was assembled under the orders of the Lieutenant Governor to consider the requirements of the province (which then included the North West Frontier) in the way of feeder roads. This Committee prepared a list of the roads which they considered should be adapted for cart traffic and metalled, wherever the cost was not prohibitive. This list was said not to be exhaustive, but it included 45 roads, aggregating about 850 miles, in what is now known as the Punjab.

(10) Colonel Jacob, then Chief Engineer, reviewing these proposals, considered that the province should be able to build and maintain these roads, but that, even with substantial assistance from the District Boards concerned, with the funds which seemed likely to be available, the proposal would have to be spread over a period of 10 to 20 years.

(11) Colonel Jacob recorded his opinion that with rare exceptions it was better that metalled roads with the buildings along them should be in the hands of the P. W. Department.

(12) The ultimate decision however was that all unmetalled roads, even when feeders to railways, should be maintained by the District Boards concerned and were only to be taken over by Government where special reasons existed for so doing.

(13) In 1905 the Government of India having made an annual recurring grant of  $6\frac{1}{2}$  lakhs to District Boards to be expended primarily on roads and bridges, a list of 76 roads was prepared and accepted by Government, viz.—

*Class A.*—True feeder roads to railways . . . 549 miles ;

*Class B.*—Other roads less urgent and for purely local needs 283 miles ;

and 3 lakhs were allocated to metalled feeder (Class A) road construction and  $1\frac{1}{2}$  lakhs to improving the District Boards' engineering establishments. The local Government also, in order to speed up construction, undertook to supplement the road grant with a further 3 lakhs for five years from provincial revenues. It also undertook half the cost of maintaining the existing feeder roads for the same five years, after which the entire responsibility for new

construction and all maintenance was to be handed over to the District Boards together with the whole of the Government of India grant of 6½ lakhs.

(14) In allotting 1½ lakhs for establishment it was stated that the aim was to make District Boards gradually independent of Government assistance in constructing and maintaining roads and therefore they should have a competent staff.

(15) Sanction to the construction or metalling of these feeder roads was generally accompanied by a condition that the Board of the district affected should undertake to contribute to the upkeep at a fixed rate per mile.

(16) Later the position was reviewed and it was decided that it would be inadvisable for Government to continue the policy of constructing more feeder roads for the full term of five years originally contemplated and it was decided that all old and newly contemplated feeder roads, with the funds available, should be transferred to the local boards for future maintenance from 1st April 1910, and that the roads then under construction were to be completed from provincial revenues and then handed over to the Boards concerned for maintenance. Consequently on 1st April 1910, 400 miles of newly metalled feeder roads were handed over to the various Boards, with the intimation that they were expected to maintain them efficiently as well as to maintain the 600 miles of old roads which had been brought up to a proper standard of efficiency during the four years. It was also intimated that while Government would complete the roads which were still in hand it was not prepared to build any more new feeder roads from provincial funds. The roads in progress on 1st April 1910 were handed over for the Boards' maintenance as completed.

(17) The growth of motor traffic after the war led to a demand for more and better roads, and it was realised that certain roads would be largely used by through traffic, from which districts would derive no direct benefit though having to bear the consequent increase in the cost of maintenance. This led to a reconsideration of the whole problem, with the result that Government has decided to accept entire responsibility for all arterial roads connecting district headquarters and towns of over 20,000 inhabitants, and to give grants-in-aid to District Boards towards the upkeep of main roads.

(18) Under the Devolution Rules, framed under the Government of India Act (1919), which came into force in the Punjab on 3rd January 1921, "Roads bridges, ferries and other means of communication" became a transferred subject, but "subject to such conditions as regards control over construction and maintenance of means of communication declared by the Governor General in Council to be of military importance and as regards incidence of special expenditure connected therewith, as the Governor General in Council may prescribe" [*vide* paragraph 6 (b) of Part II of Schedule I attached to the Devolution Rules under Section 45-A of the Act]. The Government of India in the Army Department however stated in their letter No. 32575/2 (Q.M.G.-2), dated the 7th November 1921, that there was no intention at present of classifying any roads or bridges within the Punjab as of military importance.

(19) Thus the present state of affairs is that the provincial Government through the agency of the Buildings and Roads Branch of the Public Works

Department maintain from provincial revenues all these roads classified as "Arterial", as well as certain other roads (details are given in Table II),\* it also develops these roads from provincial revenues and in special cases from provincial loans (such as the Nili Bar Scheme). The District Boards maintain from their own funds with the assistance of grants-in-aid given by the provincial Government from provincial revenues all those roads classified as "Main" and solely from their own funds "Other" or "Class III" roads. Thus District Boards develop the "Main" and "Other" roads from similar financial sources. The canal roads are made as part of the canal system from capital expenditure and the cost of maintenance is charged to canal revenues. The village roads are maintained by the villagers themselves without any assistance either from provincial or district funds, but the Communications Board has under consideration a scheme for giving the villages financial assistance in this matter.

(20) The development of "Arterial" roads is proceeding according to a programme by which it is expected to metal about 100 miles of unmetalled roads annually at an average cost inclusive of land acquisition of about Rs. 25,000 a mile. The programme includes occasional works such as bridging, widening the metalling of existing metalled roads, etc., on which the average expenditure annually is estimated at Rs. 5 lakhs.

These successive additions to the metalled length bring a corresponding increment to the maintenance bill. It is estimated on the figures of 1926-27 that the average cost of maintenance of metalled roads is about Rs. 1,900 a mile, and of unmetalled roads about Rs. 240 a mile. The latter figure appears high until it is explained that the unmetalled class maintained from provincial funds includes a large proportion of Himalayan roads which are maintained as important trade routes. It is of course possible and even probable that the increasing intensity of traffic on roads may render an increasing expenditure on maintenance necessary. Thus the financial position is approximately as follows, so far as the maintenance and development of "Arterial" and "Other" roads by the Public Works Department is concerned :—

	Rs.
<i>Repairs.</i>	
1. 2,140 miles of metalled roads at Rs. 1,900 a mile ..	= 40,66,000
2. 2,580 miles of unmetalled roads at Rs. 240 a mile	= 6,19,200

*Construction (15 years' programme).*

3. Metalling of 100 miles of road at Rs. 25,000 a mile	= 25,00,000
4. Occasional works .. .. . say	5,00,000

From provincial revenues .. .	76,85,200
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\* At Appendix.



*Construction on the Nili Bar Scheme (10 years' programme).*

	Rs.
5. Making 47 miles of metalled road a year at Rs. 27,800 .. .. .	13,06,600
Making 38 miles of unmetalled road a year at Rs. 5,540 .. .. .	2,10,520
	<hr/>
From provincial loans .. .. .	15,17,120
	<hr/>

The annual amount spent under construction can of course be varied according to the financial situation in the province, but under repairs it is essential to meet the annual bill and if the 100 mile a year rate of construction is carried on, the increment to the repairs bill is  $100 \times (1,900 - 240) = 1,660 = \text{Rs. } 1,66,000$ .

The increment on account of the Nili Bar Scheme is to be added.

	Rs.
47 miles of metalled road at Rs. 1,900 a mile .. .. .	= 89,300
38 miles of unmetalled road at Rs. 100* a mile .. .. .	= 3,800
	<hr/>
	93,100
	<hr/>

The annual grants-in-aid from provincial revenues to District Board funds may be assumed at Rs. 7 lakhs. Summarising, we have—

	Rs.
Expenditure on present road lengths maintained by the P. W. D. Repairs .. .. .	= 46,85,200
Expenditure on development on a 100 mile/15 year programme. Ordinary construction .. .. .	= 30,00,000
Expenditure on special development on a 47/38 mile/ 10 year programme. Nili Bar capital construc- tion .. .. .	= 15,17,120
	<hr/>
	92,02,320
	<hr/>
Annual grants-in-aid .. .. .	7,00,000
	<hr/>
Annual increment to repairs bill—	
on ordinary construction .. .. .	1,66,000
on special construction .. .. .	93,100
	<hr/>
	2,59,100
	<hr/>

\* Above figure is taken as no mountain roads are in question.

In short the annual road bill for construction, maintenance and grants-in-aid is about Rs. 1 crore, increasing by Rs. 2½ lakhs annually so long as the present rate of development is maintained.

## II.—REPLIES TO QUESTIONNAIRE.

### A.—ROAD DEVELOPMENT.

1. A copy of the map on a scale of 1 inch=16 miles, taken from the annual administration report of the P. W. D., Punjab, Buildings and Roads Branch, for 1926-27 is attached.\* This shows the provincial and local boards roads, distinguishing between metalled and unmetalled. It also shows railways and canals.

(i) In compiling statements of the mileage of roads of different classes and types the difficulty arises that as the Punjab has in hand a construction programme the figures are subject to change as unmetalled miles are metalled. Hence in Table I† the present as well as the probable future figures have been entered, but in this table as in all others relating to road statistics in these replies the figures must be regarded as approximate only. The collecting and recording of road statistics has not received much attention in the past and it will take some time before this work is systematised and accurate results are available. Also the proposals as to alignments of the roads selected for transfer to the arterial class are sometimes varied when considered in detail, and the choice of roads may even be changed before the transfers are completed.

Also *vide* Tables I—III printed as Appendix.

(ii) *Vide* Tables IV, V (a) and V (b) printed as Appendix.

(iii) *Vide* Tables VI and VII printed as Appendix.

(iv) The Buildings and Roads Branch of the P. W. D. is the Government agency responsible for the construction and maintenance of roads from provincial funds. (See Table II†).

The District Board of the civil district in which the road lies is responsible for the construction and maintenance of roads from local funds. (See Table III†).

(v) The financing of roads from provincial funds is dealt with in the reply to question A-7 (b) and (c).

The cost of constructing and maintaining the roads in the charge of District Boards is met from revenue derived from the local rate supplemented by grants-in-aid from provincial funds.

The Communications Board obtain funds for grants-in-aid by submitting its budget in September of each year like any other Government Department under 41—Civil Works (Y Grants-in-aid) and after consideration by the Finance Department and passing by the Legislative Council funds are allotted under—(a) Maintenance, (b) Special repairs, (c) Bridges and roads (development), (d) Colony roads (development).

*Maintenance.*—Grants-in-aid made under this head are a definite percentage fixed for each district of the total expenditure on maintenance of the previous year by each District Board. The circumstances governing the fixing of

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\* Not printed.

† Printed as Appendix.



these percentages are explained in the revised classification scheme. These grants-in-aid are made after the accounts of the previous year have been audited by the auditor of the Communications Board.

*Special repairs.*—Applications made from time to time by District Boards are individually considered by the Communications Board. The percentage of grants are governed by the capacity of District Board to pay and the funds available.

*Bridges and roads (development).*—District Boards are invited to submit proposals in good time for new works to be carried in the ensuing year. These are examined by a sub-committee of the Communications Board and the selection of works is governed by the funds available and the urgency of the works. Here again capacity of District Board to pay governs the percentage of grant-in-aid. The recommendations of the sub-committee are then laid before the Communications Board in due course for final decision.

*Colony roads (development).*—Generally speaking in colony areas Government has already met obligations by providing adequate roads (except in the Lower Bari Doab Canal Colony, portions of Multan and Montgomery). Government is gradually making up the deficiency by giving annual grants-in-aid.

The method of obtaining these grants is similar to that for bridges and roads.

The procedure regarding administrative approval and technical sanction is set forth in the District Works Rules\* 1926 (paragraphs 3, 5 and 7).

(vi) *Vide* Tables VIII—X printed as Appendix.

(vii) *Vide* Table XI printed as Appendix.

2. The area of British territory in the Punjab is 99,866 square miles (Census of India, 1921, Volume XV, Part II, Table I). It has been explained in reply to question 1 (i) that the provincial Government maintains certain lengths of roads passing through Indian States, the expenditure figures include this charge and the mileage figures take into account these lengths.

In Table XII below, the lengths given as totals in Table I† have been used, but as Table I† indicates the various stages of road development and the corresponding lengths, the Road Development Committee can select any particular stage and calculate the figures accordingly.

The figure of population used is 20·7 millions for the total population and 18·1 millions for the urban population, the latter figure being calculated from the 1921 census return of population not living in "Towns".

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\* Not printed.

† *Vide* Appendix.

TABLE XII.

		(i)	(ii)
(a)	.. .. .	3.74	21.98
(b)	.. .. .	18.00	106.00
(c)	.. .. .	21.00	121.00

## 3. (a) (i)

Year.	Provincial revenue. (In thousands of Rs.)	Remarks.
1924-25	10,85,80	} Excluding extraordinary receipts.
1925-26	11,38,56	
1926-27	11,01,30 (revised estimate).	

3)33,25,66

11,08,55

Year.	Expenditure on provincial roads from provincial revenue. (In thousands of Rs.)	Remarks.
1924-25	34,49	Expenditure against 60—Civil Works (capital) not included.
1925-26	60,87	
1926-27	80,16	

3)1,75,52

58,51

$$\frac{58,51 \times 100}{1,10,855} = 5.3 \text{ per cent.}$$

$$(a) (ii) \frac{\text{Rs. } 23,80,428}{\text{Rs. } 1,06,42,602} = 22.4 \text{ per cent.}$$

(b) Incidence per head of all road expenditure from provincial revenues—

(i)  $\frac{5,851}{20,680} = 0.28$  rupee per head of total population.

(ii)  $\frac{5,851}{18,120} = 0.32$  rupee per head of rural population.

(iii) 2.06 annas.

4. Occasional counts of traffic passing certain points have been made mainly in order to test the necessity for improving level crossings. No attempt has been made to undertake a permanent traffic count nor is it considered that the expenditure involved in making such a count would be comparable with the value of the use which could be made of such data.

5. The reply to this question is incorporated in the reply to question C.1.

6. The Punjab Government would have preferred to discuss the existing road system and its development with reference to the needs of transport generally rather than from the limited aspect of motor transport, but as the Road Development Committee cannot but be interested in this wider view their attention is invited to part B-II of the Punjab Memorandum\* for the Royal Commission on Agriculture (2nd edition, 1926-27).

Considered from the point of view of motor transport the defects in the existing road system are briefly :—

- (i) insufficient mileage of metalled roads,
- (ii) insufficient width of metalling,
- (iii) sharpness of curves on hill roads,
- (iv) liability of unmetalled roads to be blocked by water courses,
- (v) existence of dry sandy stretches of road,
- (vi) the nuisance from dust,
- (vii) low standard of maintenance of metalled roads shown by roads in charge of local boards.

The accepted programmes of re-classification and development will extend the mileage of metalled roads by about 100 to 150 miles a year. The standard of maintenance of metalled roads by District Boards will probably improve in the near future as a result of the adoption of general supervision over the expenditure of grants-in-aid by the staff of the Communications Board.

Twelve feet has been adopted as the standard width of metalling on arterial roads. For motor transport a width of twenty feet is needed if vehicles are to be able to keep to the metalling when passing each other. The unmetalled berms are usually soft and dusty and the transition from a metalled surface to the berm is liable to strain the steering gear and cause accidents. The constant passing of motor vehicles across the edge of the metalling rapidly roughens and wears it down.

The nuisance from dust will be lessened as the use of tar or bitumen extends and as the metalled width is increased.

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\* Not printed.

The road maintenance statistics do not yet show the economic advantage of tarring, but the field observations show that a considerable economy is to be expected.

The dangers of motoring on hill roads are being lessened gradually by banking the road on curves and increasing their radii, by cutting back the hillsides at salients so as to increase the length of the sight line, by the provision of cart stands where slow moving vehicles may be parked, by the provision of benches where stone may be collected clear of the roadway for repairs and renewals, and by widening bridges and culverts.

With the extension of arterial roads the provision of water-course culverts takes an early place in the programme of development. Similarly attention is paid to the grassing of sandy stretches and the provision of submersible causeways is receiving attention.

7. (a) The question appears to assume that a programme of road development is to be determined by the *needs* of motor transport whatever *this* may mean. A provincial programme of road development should be determined by the needs of the province for roads and in particular by the necessity of adequate facilities for getting agricultural produce to the markets. The development of roads for motor transport will undoubtedly assist towards these objects—but the fundamental question is the development of road communication in all its aspects *and not merely* the development necessary to keep pace with the needs of motor transport. For instance, the needs of motor transport, if by this is meant the necessity of providing roads for such transport, might well prove so costly as to reduce the amount available for expenditure on roads fit for other forms of *transport*. It is therefore necessary to treat road development as a whole and not merely as an incident of motor transport.

It is possible that a stricter observance of the licensing regulations would bring about a reduction in the present rate at which the number of light motor omnibuses is increasing. Much of the excessive wear on water-bound macadam roads is caused by the overloading of these vehicles.

The whole question of motor and motor traffic regulations is coming under the consideration of Government.

A second element of difficulty in forecasting the growth of motor transport is that while civil engineers are trying to make roads suitable for motor traffic, automobile engineers are trying to make motors suitable for roads. The wheeled vehicle is being rapidly improved and it is likely that in the near future these chassis will be capable of travelling at speed over any of the unmetalled roads of this province.

The position in short appears to be that motor vehicles are likely to be improved so as to make full use of whatever road system is available and that whereas there are financial limits to the making and maintaining of roads it is not possible to set limits to the development of motor transport though it is possible to prevent illegitimate development and to retard legitimate development by excessive direct taxation of the motor and its fuel. The question then resolves itself into one of finance and will be dealt with more generally in replying to (b) and (c).

(b) & (c) It is assumed that these questions relate to road development in general and not merely to road development required to keep pace with the growing needs of motor transport.

No rigid principles can be laid down regarding the finance of road development, since the method of finance depends on a number of considerations of which the following are some :—

- (1) the degree of necessity and the economic value of the roads to be constructed ;
- (2) the financial resources of the authority responsible for construction ;
- (3) the demands on that authority for expenditure on development in other departments and their relative importance in comparison with road development ;
- (4) the financial return (a) to the constructing authority and (b) to the public from particular schemes of road development.

So far as road development by a provincial Government is concerned, it may be said generally that the construction of a road is not a productive undertaking. The capital and recurring charges are heavy and the direct return is comparatively small. A feature of road finance that has to be carefully watched is the rapidity with which the recurring charges of maintenance increase, and for this reason it is necessary, before embarking on a large programme, to consider carefully whether financial resources will suffice at each stage of the programme to meet recurring charges.

Having regard to the above considerations, the following principles should ordinarily be observed in the finance of road development out of provincial funds :—

- (a) Ordinarily road development should be financed out of ordinary revenue.
- (b) The rate of construction should be determined by the ability to meet the recurring cost of maintenance and the requirements of the province in other directions.
- (c) A programme of construction should therefore be drawn up extending over a number of years and framed in accordance with the probable available resources of the province, in so far as these can be estimated, the programme being liable to acceleration or retardation according as the resources prove to be above or below expectation. Since the resources available for road development will depend on the requirements for other forms of development, these in turn should be provided for in definite programmes, so far as this is possible.
- (d) If the programme of road development is in excess of available resources, then the excess should be provided for by new taxation, and if it is intended definitely to earmark the proceeds of the new taxation for road development, it should be imposed with this purpose and with a definite undertaking that the proceeds will be so devoted.

Exceptional cases may however arise in which it is proper and desirable that the construction of roads should be financed out of extraordinary receipts or out of capital by means of loans. The following may be given as instances :—

- (1) the construction of roads in an area which is to be brought under colonization or some other form of intensive development ;
- (2) the early stages of a programme of road construction in a province which, though unable at the moment to meet the capital cost of construction, has in sight new recurring receipts out of which the recurring cost inclusive of interest on and liquidation of loans can be met.

The above principles have been followed in the Punjab, where the cost of road construction and maintenance is met out of revenue, except in the Nili Bar, where the cost of construction is met out of extraordinary receipts or capital. The justification of the method of finance in the Nili Bar is firstly, the necessity of roads for the profit and convenience of new colonies, and secondly, the fact that an early and comprehensive road programme largely pays for itself by securing to Government higher prices for land which is sold by auction, and by enabling Government to impose higher rates of land revenue and higher occupiers' rates than would otherwise be possible.

It may be observed that there is less financial objection to the construction of a bridge than to the construction of a road out of capital, since for the former the recurring cost of maintenance is practically negligible. Where, however, a bridge is constructed out of capital, the period fixed for the repayment of the loan should be comparatively short, and should not ordinarily exceed 10 years.

8. In reply to question 5 it has been stated that the Punjab Communications Board is charged with the co-ordination of communications in all its forms. Accordingly, the North Western Railway has a representative on the Board, and if any question is to be discussed which is likely to affect a foreign railway a representative of that railway is invited to attend.

The Punjab Government has agreed as a general policy to refrain from opening new metalled roads (other than arterial communications) which may conflict with railway interests, and the problem of efficient co-ordination is constantly before Government. To this end the matter was considered at a representative meeting on the 20th June 1927 with special reference to the programmes of construction included in the road re-classification schemes. The matter is moreover of direct interest to Government in connection with those railways for which Government has guaranteed the railway against loss in working.

A categorical reply to this question is not possible and views as to the effect of road development on railways will inevitably be divergent, but having the interests of the railways so much at heart Government is carefully watching the effects as they appear and is ready to apply correctives directly disadvantageous results are observed.

Incidentally it may be mentioned that the Punjab Government has adopted a policy of metalling and improving roads which link arterial roads to railway stations.



Attention is invited to the portion of the reply to question 7 (a) dealing with the advance in automobile design.

9. (a) From time to time the Punjab Government has submitted specimens of stone for testing as to their likelihood of making durable roads. Technical opinion is divided as to the utility of such tests, some engineers holding that they do not afford reliable results. The Punjab Government is not at present prepared to suggest any directions in which these testing facilities should be extended.

(b) (i) Short experimental lengths of various tar and bituminous treatments as well as of cement concrete have been tested on heavily trafficked sections of road near Lahore, and those which gave most promise of success are now being tried on a more extensive scale in various parts of the province. In the absence of special plants for reproducing artificially the effects of high temperature combined with traffic in an intensified form, however, it will necessarily take some years before definite conclusions are reached.

(b) (ii) The effect of different classes of traffic upon roads and similar questions are being carefully observed by the officers of the Buildings and Roads Branch, and by the Engineer-Secretary of the Communications Board, and the results of these experiences find expression in either separate special reports (as for example, the report\* by Rai Sahib Lala Sant Ram, Executive Engineer, on the effect of motor bus traffic on the Grand Trunk Road between Lahore and Amritsar) or in the reports to the annual maintenance.

(c) Officers of the Punjab Government have from time to time been deputed to visit road work in progress outside the province and to report the result for the benefit of Government and the Communications Board.

Technical papers have been obtained from other provinces and Punjab papers have been supplied.

The Government of India Library and the Imperial Library, Calcutta, might well arrange to receive several copies of all such literature, and from time to time issue a separate up to date sectional catalogue to keep officers informed of the information which is available.

(d) The cost of carrying out the suggestion in (c) is not likely to be so great as to need any special financial provision.

The Punjab Government agrees that the expenditure of funds on experiment and research is justifiable but as to the particular method of financing such expenditure would invite a reference to their reply to question A. 7.

#### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

As the Indian Motor Vehicles Act came into force only in 1914 and the rules governing the registration of motor vehicles were framed by the local Government in the year 1915, *vide* Punjab Government Notification No. 552 (C and I), dated the 1st April 1915, the information for the year 1913-14 cannot be supplied.

TABLE XII-A.

PROGRESSIVE TOTAL OF MOTOR VEHICLES REGISTERED IN THE PUNJAB.

Up to the end of 1913	..	..	..	..	463
Up to the end of 1914	..	..	..	..	819
Up to the end of 1923	..	..	..	..	6,683
Up to the end of 1924	..	..	..	..	7,695
Up to the end of 1925	..	..	..	..	9,044
Up to the end of 1926	..	..	..	..	10,815
Up to the end of 1927	..	..	..	..	13,480

The above figure for 1927, does not include some 700 cars running under registered numbers of other provinces, nor does it include 59 commercial lorries (weighing more than 2 tons) which are registered by Deputy Commissioners. The progressive totals do however include the figures for commercial vehicles given separately below in case they are of use.

TABLE XII-B.

PROGRESSIVE TOTAL OF MOTOR VEHICLES FOR COMMERCIAL PURPOSES REGISTERED IN THE PUNJAB.

Up to the end of 1923	..	..	..	..	273
Up to the end of 1924	..	..	..	..	325
Up to the end of 1925	..	..	..	..	373
Up to the end of 1926	..	..	..	..	436
Up to the end of 1927	..	..	..	..	531

The above does not include lorries weighing more than 2 tons.

Table XIII shows the number of motor vehicles registered in the years 1923-24 to 1926-27—

TABLE XIII.

		1923-24.	1924-25.	1925-26.	1926-27.
(a) Private cars	.. ..	446	686	762	819
*(b) Lorries including buses	.. ..	139	162	210	641
(c) Taxis	.. ..	84	79	129	116
(d) Commercial goods vehicles	.. ..	26	57	40	73
(e) Motor cycles	.. ..	172	162	267	275
Total	..	867	1,146	1,408	1,924

\* Separate records for urban and rural bus services are not maintained.



2. This question has been referred to in the reply to question A. 7 (a).

### 3. A.—PROVINCIAL TAXATION.

(1) *The Punjab Motor Vehicles Taxation Act.*—The Punjab Motor Vehicles Taxation Act came into force with effect from 1st April 1925. It was amended with effect from 1st July 1925 in order to relieve commercial vehicles of part of the taxation. The rates for private and commercial vehicles are given in the statement below :—

*Statement showing the annual tax on motor vehicles as levied by the Act of 1924 and as amended by the Act of 1925.*

	Act of 1924.	Amendment Act of 1925.
	Rs.	Rs.
1. Cycles (including motor-scooters and cycles with attachment for propelling the same by mechanical power), not exceeding 8 cwt. in weight, unladen—		
(a) Bicycles not exceeding 200 lbs. in weight unladen .. .. .	15	15
(b) Bicycles exceeding 200 lbs. in weight unladen .. .. .	30	30
(c) Bicycles if used for drawing a trailer or side-car, in addition ..	10	10
(d) Tricycles .. .. .	40	40
2. Vehicles not exceeding a cwt. in weight unladen, adapted and used for invalids.	5	5
3. Vehicles used solely in the course of trade and industry for the transport of goods (including tricycles weighing more than 8 cwts. unladen)—		
(a) Electrically propelled, but not exceeding 25 cwts. in weight, unladen ..	35	35
(b) Vehicles other than such electrically propelled vehicles as aforesaid, not exceeding 12 cwts. in weight, unladen .. .. .	50	25

	Act of 1924.	Amendment Act of 1925.
	Rs.	Rs.
(c) Vehicles exceeding 12 cwts. but not exceeding one ton in weight, unladen .. .. .	75	37½
(d) Vehicles exceeding one ton but not exceeding 2 tons in weight, unladen .. .. .	150	75
(e) Vehicles exceeding 2 tons but not exceeding 3 tons in weight, unladen .. .. .	200	200
(f) Vehicles exceeding 3 tons but not exceeding 4 tons in weight, unladen .. .. .	300	300
(g) Vehicles exceeding 4 tons in weight, unladen .. .. .	400	400
(h) Vehicles if used for drawing a trailer, in addition for each trailer; provided that two or more motor-vehicles shall not be chargeable under this clause with respect to the same trailer ..	50	50
4. Vehicles plying for hire and used for the transport of passengers—		
* Vehicles plying for hire and ordinarily used for the transport of passengers within the limits of a municipality or a cantonment—		
(a) Tram-cars .. .. .	15	15
(b) Other vehicles seating not more than four persons .. .. .	50	50
(c) Other vehicles seating more than four persons but not more than six persons .. .. .	75	75
(d) Other vehicles seating more than six persons for every additional person, that can thus be seated up to 32, in addition .. .. .	6	6
(e) Other vehicles seating more than 32 persons .. .. .	700	700
*4-A. Vehicles plying for hire, and ordinarily used for the transport of passengers outside the limits of a municipality or a cantonment or from a point situated within the limits of a municipality or cantonment to a point situated outside such limits or within the limits of another municipality or cantonment—		
(a) Tram-cars .. .. .	15	15

\* Changes introduced by the Amendment Act of 1925.

	Act of 1924.	Amendment Act of 1925.
	Rs.	Rs.
(b) Other vehicles seating not more than four persons .. .. .	50	30
(c) Other vehicles seating more than four persons, but not more than six persons .. .. .	75	40
(d) Other vehicles seating more than six persons but not more than twenty persons.	Rs. 75 + Rs. 6 for every person in excess of 6.	50
(e) Other vehicles seating more than twenty persons, for every additional person that can thus be seated up to 32 .. .. .	Ditto	.. Rs. 50 + Rs. 6 for every person in excess of 20.
(f) Other vehicles seating more than 32 persons .. .. .	700	700
5. Motor-vehicles other than those liable to tax under the foregoing provisions of this schedule :—		
(a) Seating not more than one person	40	40
(b) Seating not more than three persons .. .. .	60	60
(c) Seating not more than four persons .. .. .	80	80
(d) Seating more than four persons, for every additional person that can be seated .. .. .	20	20

(2) *Registration fees.*—Under the Punjab Motor Vehicles Rules, 1915, the following registration fees are imposed :—

	Rs.
For motor cycles .. .. .	4
For a motor vehicle other than a vehicle exceeding 2 tons in weight unladen .. .. .	16
For a general number for vehicles on trial .. .. .	30
For a vehicle exceeding 2 tons in weight .. .. .	32

(3) *Driving licences.*—Under Part III of the Punjab Motor Vehicles Rules, 1915.

The fee for a driving licence is Rs. 2 per annum.

(4) *Tolls* under Section 2 of Act VIII of 1851.

The rates of toll are fixed by Gazette Notification and the right to collect the toll for a specified period is auctioned publicly, *e.g.*,—

	Rs.
Salgrams bridge mile 16/17 Rawalpindi-Kohala Road, 1st April 1925 to 31st March 1928 .. .. .	90,525 per annum.
Kohala bridge-Rawalpindi-Kashmir Road, 1st April 1925 to 31st March 1928 .. .. .	38,100 ..

## B.—TAXATION BY LOCAL BODIES.

Taxation of motor transport by local bodies is—

- (1) by means of octroi or terminal tax on import in respect of new motor vehicles, petrol, oil, tyres and accessories.
- (2) by means of vehicle tax under Section 61 (1) (c) of the Punjab Municipal Act in 12 municipalities ; usual rate Rs. 3 per mensem on motor cars, Rs. 2 per mensem on motor cycles with side cars and Re. 1 per mensem on motor cycles without side cars.

[Further particulars are given in Beazley's Municipal Law and Practice (2nd Edition) Appendix L. V. 1.]

- (3) by means of a toll under Section 61 (1) (d) of the Punjab Municipal Act in the municipality of Murree, at rates on each occasion of entry from Re. 1 in the case of a motor car carrying not more than 4 persons up to Rs. 4 for a motor carrying 13 or more persons ; 8 annas for a motor cycle and 12 annas for a motor cycle with side car : amount received in 1926-27 Rs. 18,100.

[Further particulars are given in Beazley's Municipal Law and Practice (2nd Edition) Appendix L. VI.]

- (4) by means of licence fees for motor vehicles licensed to ply for hire. (In Lahore fees are Rs. 8 per mensem for motor cars and Rs. 16 per mensem for motor buses.)

NOTE.—Rs. 5,000 were received by way of rent for storage or parking facilities in 1926-27.

4. The proceeds of provincial motor taxation are not allocated to expenditure on roads or specifically to any other purpose. In present circumstances the question of specific allocation is of academic interest in the Punjab. In 1926-27 the proceeds of motor taxation were less than 3 lakhs, while the expenditure on roads was 94 lakhs.

Similarly the proceeds of local taxation are not allocated to expenditure on roads but to the general revenues of the local body.

5. (a) & (b). There is no practice in this province by which any source of revenue is allocated to a specific object of expenditure. The revenue receipts of Government, from whatever source they may be derived, are regarded as a fund which, taken over a number of years, determines the revenue expenditure of Government in all its departments. The expenditure of any particular department is not regulated by the amount it has contributed to the fund. Any surplus which remains after provision has been made for the unavoidable commitments of Government, is distributed in the shape of new expenditure among the various departments according to the comparative importance of their requirements, as determined by the Executive Government, and, in the case of voted expenditure, as approved by the Legislative Council. The Punjab Government is not in favour of any departure from the principle that the authority which has the power to tax should,

subject to the control of the Legislative body, have the power of disposal of the proceeds as it thinks proper. The only exception is where a specific pledge is given that the proceeds of a particular tax shall be devoted to a definite purpose; and it considers that this expedient should be rarely adopted.

Where the taxing authority is different from the authority whose expenditure determines the amount of the proceeds of the tax, a case may exist for the readjustment of the powers of taxation, but this is a different question. It might be argued, for instance, that so far as motor taxation is concerned, central revenues benefit largely through the expenditure by the provinces on roads; but a similar argument could be applied to other sources of central revenue, and the question as to whether the Government of India should surrender this or that power of taxation to the provinces can be determined only by a far reaching examination, which is outside the present terms of reference and which would embrace a survey of the resources and requirements of the central and each provincial Government.

It may be observed that since the expenditure on roads is voted, it is impossible under the present constitution to provide any effective means by which the proceeds of motor taxation can be indefinitely earmarked for road development. The members of one Legislative Council could not bind their successors; indeed, a resolution to this effect passed by the Legislative Council would be liable to reversal by the same Council.

It is only in a few large municipalities that there are any considerable lengths of road used by motor vehicles and the amounts spent on roads probably in all cases already exceed the amounts received by way of taxation of motor vehicles: to allocate such receipts definitely to expenditure on roads would therefore not affect the existing position.

6. (a) *Central*.—Customs duties—

on motor cars and accessories and on *petrol*.

(b) *Provincial*—

(1) Direct taxation payable by owners of vehicles and assessed either on horse power or seating capacity.

(2) *Registration fees*—which should at least cover the direct and indirect cost of registration—but should not be a considerable source of revenue.

(3) *Driving licence fees*—as for (2).

(c) The extent to which motor vehicles are already taxed locally is explained in reply to question B (3). The matter has not yet been fully considered by Government, but as a general principle it is undesirable to allow further taxation by local bodies, in view of the fact that such vehicles are subject to both central and provincial taxation. If provincial taxation were taken off, the most suitable form of local taxation would appear to be vehicle taxes at flat rates for different classes of private vehicles and licence fees at flat rates for different classes of vehicles kept or plying for hire.

7. (a) The Punjab Government is not opposed in principle to the proposal of the Bombay Government that an additional duty should be imposed on petrol for the purpose of road development in the provinces. With regard to the extent of the increase, it has not statistics available from which it can form an opinion as to whether the doubling of the duty as proposed by the Bombay Government would or would not cause a large reduction in consumption; but it apprehends that a considerable reduction would occur. It is also doubtful as to whether the public are at present sufficiently interested in road development to support an increase in the duty of petrol, which would have the effect among the poorer owners of motor cars of curtailing to some extent the use of their cars. The system of direct motor taxation at present in force in the Punjab provides for discrimination in favour of commercial vehicles. Such discrimination is not possible, or would at least be very difficult, in the case of a tax on the consumption of petrol, and if it were still considered desirable to discriminate in favour of commercial vehicles, it would be necessary to retain some form of direct taxation. The present view of the Punjab Government is that even if an additional duty were imposed on petrol, it would retain the direct taxation now in force.

(b) While the Punjab Government is not opposed to the principle of an extra duty on petrol, its support of the proposal would depend on the method of distribution of the proceeds of the tax. It is strongly opposed to the proposal of the Bombay Government that the distribution should be on the basis of consumption. Such a system would benefit provinces with large cities, such as Bombay, Calcutta, Madras and Rangoon, and would inevitably raise a claim from the municipal bodies of those cities to a share of the proceeds. The distribution would have no correspondence with the development of inter-provincial communications and of main and arterial roads; nor would it necessarily correspond with the efforts the various provinces were themselves making to develop roads out of their own resources. It would, therefore, fail to achieve the primary objects of the scheme of road development.

8. (a) *Import duty*—

Ad valorem.

(b) *Registration and licence fees*—

Flat rates for all vehicles.

(c) *Motor taxes*—

(1) According to weight for heavy vehicles.

(2) According to horse power or seating capacity for light vehicles.

In the Punjab convenience of assessment has been the chief determining factor.



9. (a) *Central taxation*—

It is not practicable or desirable to place maxima limits on the powers of the central authority in regard to taxation—if the suggestion is that these should be imposed by statute.

(b) *Provincial*—

As in (a).

(c) *Local*—

As in (a).

Generally, however, it is both practicable and desirable that (1) central taxation should not be so heavy as to check the development of motor transport; (2) that provincial taxation should not be so heavy as to encroach on central revenues by checking imports, (3) that local taxation should not encroach on provincial.

With regard to central and local, the taxation authorities may be trusted to hold the balance fairly even; but as between provincial and local authorities the latter being more likely to consider local interests must be subject to the control of provincial Governments in so far as their taxation proposals must be subject to the sanction of local Governments.

10. It has been suggested that all taxation should be central or provincial, but as motor vehicles undoubtedly damage roads for the upkeep of which local bodies are responsible, it is only fair that they should receive some share of the taxation. They could be compensated for loss—

in respect of octroi and terminal tax, by a share of the initial registration fee; in respect of vehicle tax, by a share of the provincial tax; in respect of licence fees, by a share of the fees for road certificates and licences issued under the provincial rules made under the Motor Vehicles Act.

The necessary changes could be made by Government in exercise of its power of exempting any class of persons or property from any municipal tax so far as octroi, terminal tax and vehicle tax are concerned and of cancelling confirmation of bye-laws so far as licence fees are concerned.

11. This question has been partly dealt with in the answer to question No. 5. It may be added that a road fund such as is contemplated could not be placed outside the powers of control of the Legislative Council, which could, therefore, refuse (a) to vote a credit to the fund, or (b) to vote expenditure on roads out of the fund. If the amount of accumulations in the funds became considerable, it would be liable to be raided, while its existence might well tend to defeat its own object by encouraging the idea amongst members of the Council that the provision for roads should be limited by the amount in the fund. Since motor taxation is unlikely for many years to provide



a sum approximating to the amount required for expenditure on roads and since, therefore, a large part of the road expenditure will have to be met out of other sources of revenue, it is not in the opinion of this Government sound policy to attempt to limit the control of the Legislative Council over road expenditure by the creation of a road fund. The preferable course would appear to be to convince the Legislative Council of the necessity of roads and to trust them to make liberal provision in accordance with the financial resources of the province and the requirements of other departments.

12. The ideal way of providing funds for road development would be for the Central Government to reduce the taxation on motor vehicles, accessories and petrol and so enable provincial Governments to levy higher taxation. There would then be no necessity to amend the Devolution Rules. The Punjab Government, however, recognises that there are practical difficulties in the way of reduction of central taxation and its substitution by provincial taxation. It, therefore, considers, as circumstances allow, that the Government of India should surrender to the provincial Governments for the purposes of development a share of its revenue derived from taxation on motor transport, whether such revenue is obtained from excise duty on petrol or from a custom duty on motor vehicles and their accessories. This would involve an amendment of the Devolution Rules, the particular form of which the Punjab Government is content to leave to the Government of India.

13. The question assumes the allocation of central revenues for the purpose of provincial development of roads. A portion of the amount thus granted should be spent on central research, the balance being available for expenditure on provincial development. In the opinion of the Punjab Government regard should be paid to the following considerations in the distribution of the balance:—

- (i) the system of distribution should give an incentive to provincial Governments to develop roads out of their own resources ;
- (ii) it should have regard to the expenditure on roads by provincial Governments relative to their resources ; and
- (iii) the amount distributed should supplement and not replace the expenditure of provincial Governments out of their own resources ; and a reduction of provincial expenditure on roads, taken over a number of years, should involve withdrawal or reduction of the grant-in-aid from the Central Government.

The above objects could be attained by a system of block grants to provincial Governments, and the Punjab Government would prefer that system. If, however, the Government of India prefer a system of allocation for specific objects, then the Punjab Government considers that the assistance given from the revenues of the Government of India should be in direct proportion to the amount spent by a province on the maintenance of existing trunk roads *plus* the amount spent on the construction of new trunk roads, the classification of trunk roads being made by the Government of India on the advice

of a committee in which each province would be represented. It may be observed that the last method of distribution proposed, taken with the conditions beforementioned, would liberate funds now spent by provincial Governments on the maintenance of trunk roads for expenditure on roads of provincial importance only, and would therefore encourage a general programme of road development. It would not, however, necessarily assist the various provinces in proportion to the efforts which they themselves were making to provide adequate roads. One method by which the latter result could be achieved would be to divide the available balance in proportion to the total expenditure on roads met out of ordinary revenues multiplied by the percentage which such expenditure bore to the total ordinary revenue of the province; for instance—

1	2	3	4	5
Province.	Total ordinary revenue—receipts in lakhs of Rs.	Total expenditure on roads out of ordinary revenue. lakhs of Rs.	Percentage of 3 on 2.	Multiple of columns 3 and 4.
A .. ..	2,000	100	5	500
B .. ..	800	80	10	800
C .. ..	3,000	90	3	270
D .. ..	3,000	180	6	1,080

The distribution between these four provinces would be in the proportion of 500 : 800 : 270 : 1,080.

It is not suggested that the above formula is necessarily the most suitable, but if a system of block grants be adopted, regard should be paid in some form or another to the percentages which expenditure on roads bears to the ordinary revenue resources of the various provinces.

14. Vehicular traffic other than motor transport is already taxed in the form of tolls, and in the form of a wheel tax by certain municipalities, but on the question of the allocation of the proceeds of such taxation to road development attention is invited to the reply given to question B. 11.

15. No.

#### C.—ROAD BOARDS.

1. The co-ordination of (rail, tram, ropeway, water and

munications Board established in accordance with Punjab Government Resolution\* No. 27509 of 10th December 1919.

In the event of any proposal affecting Indian States coming under consideration steps are taken to co-opt a member to represent their interests, and similarly when any question affecting inter-communication with adjacent provinces is to be discussed a representative of that province is invited to attend.

The Board exercises the powers of the local Government in according administrative approval to all projects of District Boards to the cost of which it contributes, and also to all communications projects of District Boards estimated to cost Rs. 30,000 or over. The grants-in-aid to District Boards voted by the Legislative Council are distributed by the Board in accordance with a carefully devised procedure.

The present membership of the Board is given below :—

1. The Hon'ble Minister for Agriculture, *President*.
2. The Financial Commissioner, (Development), Punjab.
3. The Chief Engineer, Punjab, P. W. D., Buildings and Roads Branch.
4. The Chief Engineer, Punjab, Irrigation Branch.
5. The Chief Engineer, Punjab, P. W. D., Sutlej Valley Project, Irrigation Works.
6. The Secretary to Government, Punjab, Finance Department.
7. The Secretary to Government, Punjab, Transferred Departments.
8. The Director of Agriculture, Punjab.
9. The Director of Industries, Punjab.
10. The Chief Conservator of Forests, Punjab.
11. The Agent, North Western Railway, Lahore.
12. The Senior Government Inspector of Railways, North Western Railway, Lahore.

*Non-officials.*

13. Mian Beli Ram, Pleader, Hoshiarpur.
14. Sardar Tara Singh, B.A., LL.B., Moga, Ferozepore District.
15. Sardar Randhir Singh, Sialkot Cantonment.

16. Pir Sayad Muhammad Hussain, M.L.C., Shergarh, District Montgomery.
17. Khan Sahib Khan Muhammad Saifullah Khan, M.L.C., Isa Khel, District Mianwali.
18. Ch. Zafrullah Khan, Bar-at-Law, M.L.C., 1, Napier Road, Lahore.
19. Rai Bahadur Lala Sewak Ram, M.L.C., 8, Nisbet Road, Lahore.
20. Engineer Secretary (Mr. S. G. Stubbs, O.B.E., I.S.E.).

In replying to question B-11 the intimate concern of the Legislative Council with questions of road development and maintenance has been mentioned. By attending the meetings of the Communications Board opportunity is afforded to selected members of the Legislative Council to become familiar with these problems and they are thereby enabled to bring to the debates a knowledge of the facts which is invaluable.

Without the advice of such a Board collecting not only official representatives of the departments directly and indirectly concerned (such as Railways, forests, agriculture, etc.), but also influential men from the districts, the Ministry would have to rely on the single opinion of a Secretary. It would be unfair to expect a single officer either to have knowledge of an all-embracing order to come to the best decisions on every question, or to shoulder such a responsibility.

Hence as an adjunct to the present system of Government by which funds are voted by the Legislative Council for the development and maintenance of roads it is considered that the Communications Board is of undoubted value.

2. The Punjab Government is in favour of a Central Road Board, having regard to the proposal in sub-clause (a) of the question and the purposes mentioned in sub-clauses (b), (c) and (d).

3. The Central Road Board should be so constituted as to contain representatives of the Government of India in the Finance, Army, Commerce, Public Works, and Railway Departments, and two representatives of each province. The provincial representatives would ordinarily be one finance and one technical expert, but it should be left to provincial Governments to nominate what representatives they wish.

The functions of the Central Road Board should be advisory only, the Government of India and provincial Governments retaining full discretion to act or not to act on their advice, according as the advice related to central or provincial subjects.

4. The Punjab Government cannot suggest a more suitable method of co-ordination than occasional meetings of the interests concerned. It is opposed to any form of direct control by the Central Government or a body appointed by it.

## APPENDIX.

## TABLES I—III.

(Vide question No. A.-1 (i) of questionnaire).

## TABLE I.

Mileage of roads of different classes and types.

Class.	Mileage.		Total.
	Metalled.	Unmetalled.	
1. Length of roads maintained from <i>provincial</i> funds on 31st March 1924, that is before the introduction of the road reclassification scheme .. .. .	1,176	762	1,938
2. Additional length of roads to be maintained from <i>provincial</i> funds under the first instalment of the road reclassification scheme .. .. .	613	1,017	1,630
3. Additional length of roads to be maintained from <i>provincial</i> funds under the second instalment of the road reclassification scheme .. .. .	351	803	1,154
	2,140	2,582	4,722
4. Additional lengths of roads which may be maintained from <i>provincial</i> funds when the Nili Bar Scheme is completed ..	471	383	854
5. Total length which may be maintained from <i>provincial</i> funds when the first and second instalments of the road reclassification scheme and the Nili Bar Scheme are completed .. .. .	2,611	2,965	5,576
6. Length of main (Class II) roads to be maintained from <i>local</i> funds (assisted by provincial grants-in-aid made through the Communications Board) when the second instalment of the road reclassification scheme is completed ..	998	6,777	7,775
	3,609	9,742	13,351
7. Length of other roads maintained from <i>local</i> funds, excluding village lanes ..	131	12,242	12,373
Total of all classes and types (excluding village lanes) .. .. .	3,740	21,984	25,724

The roads maintained from *provincial* funds include not only those classified as arterial (or Class I), but also certain roads linking arterial roads to railway stations, certain hill roads, and certain roads within municipal limits.

Certain of the arterial roads pass through Indian States, for example the Grand Trunk Road, and the Ambala-Tibet Road, and these lengths are maintained at present from provincial funds. The expenditure on such lengths is not booked separately.

Details of the roads maintained from *provincial* funds are given in Table II.

The roads maintained from the funds of District Boards, assisted by grants-in-aid from the provincial Government made through the Communications Board, are those classified as main (or Class II) and other roads (or Class III). Details of the roads (by districts) maintained from the funds of District Boards are given in Table III.

In addition to the roads of the three classes mentioned, there are village lanes, but no particulars are available as to their length or cost of maintenance. There are also roads alongside the canals maintained by the Public Works Department Irrigation Branch, some of these are metalled but the majority are unmetalled. Usually the road on one side is reserved for the use of inspecting officers and other persons wishing to use it have to obtain a special pass from the Irrigation Branch ; on the other side is frequently a road along which traffic is allowed to proceed freely.

No figures of mileage of these canal roads are included in Table I.

TABLE II.

Details of the roads to be maintained from provincial funds.

<i>Name of road.</i>		<i>Mileage.</i>	<i>Remarks.</i>
Grand Trunk Road (Art. No. 1) ..	..	547	The mileage includes link roads.
Lahore-Mianwali (Art. No. 2) ..	..	126	Arterials Nos. 16, 25 and 40 are blanks.
Lahore-Bhakkar (Art. No. 3) ..	..	229	Arterials Nos. 1-26 constitute the first instalment of the road reclassification scheme.
Lahore-Loralai (Art. No. 4) ..	..	326	
Lahore-Ludhiana (Art. No. 5) ..	..	135	
Delhi-Montgomery (Art. No. 6) ..	..	276	Arterials Nos. 27-41 are in the second instalment.
Delhi-Alwar (Art. No. 7) ..	..	67	The total in this table does not correspond exactly with the total in Table I, and for present Table III may be regarded as the latest available.
Campbellpur-Hatti (Art. No. 8) ..	..	8	
Tarnaul-Khushalgarh (Art. No. 9) ..	..	67	
Fatehjang-Mianwali (Art. No. 10) ..	..	42	

<i>Name of road.</i>	<i>Mileage</i>	<i>Remarks.</i>
Rawalpindi-Kohala (Art. No. 11) .. ..	65	
Jhelum-Talagang (Art. No. 12) .. ..	77	
Wazirabad-Jammu (Art. No. 13) .. ..	34	
Amritsar-Baijnath (Art. No. 14) .. ..	150	
Chakki-Dalhousie (Art. No. 15) .. ..	40	
Ferozepore-Fazilka (Art. No. 17) .. ..	53	
Jullundur-Dharamsala (Art. No. 18) .. ..	111	
Delhi-Muttra (Art. No. 19) .. ..	48	
Ambala-Tibet (Art. No. 20) .. ..	270	
Saharanpur-Pipli (Art. No. 21) .. ..	32	
Rohtak-Bhiwani (Art. No. 22) .. ..	27	
Sohna-Rewari (Art. No. 23) .. ..	25	
Muzaffargarh-Alipur (Art. No. 24) .. ..	52	
Dera Ghazi Khan-Mithankot (Art. No. 26) .. ..	81	
Pakpattan-Multan (Art. No. 27) .. ..	120	
Lyallpur-Sargodha (Art. No. 28) .. ..	61	
Sambrial-Pindi Bhatian (Art. No. 29) .. ..	75	
Pindi Bhattian-Jhang (Art. No. 30) .. ..	73	
Lahore-Moga (Art. No. 31) .. ..	74	
Bhimber-Shahpur (Art. No. 32) .. ..	120	
Jaranwala-Okara (Art. No. 33) .. ..	38	
Sialkot-Amritsar (Art. No. 34) .. ..	80	
Gojra-Shorkot (Art. No. 35) .. ..	45	
Sonepat-Rewari (Art. No. 36) .. ..	80	
Hissar-Karnal (Art. No. 37) .. ..	104	
Campbellpur-Pindi Gheb (Art. No. 38) .. ..	50	
Toba Tek Singh-Sheikh Fazal (Art. No. 39) .. ..	47	
Kabirwala-Jhang (Art. No. 41) .. ..	66	
Other roads now in P. W. D. charge .. ..	524	
Other roads in Nili Bar Scheme .. ..	854	

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5,299

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TABLE III.

Roads to be maintained from the funds of the District Boards assisted by grants-in-aid, when the second instalment of the road reclassification scheme is completed.

No.	District.	Mileage of roads, metalled and unmetalled.			
		Class II (District Board roads receiving grants from Communications Board) roads.		Class III (District Board roads receiving no grants from Communications Board) roads.	
		Metalled.	Unmetalled.	Metalled.	Unmetalled.
1	Hissar .. ..	15	425	8	428
2	Rohtak .. ..	88	149	..	387
3	Gurgaon .. ..	46	228	..	270
4	Karnal .. ..	26	264	17	360
5	Ambala .. ..	92	179	8	101
6	Simla .. ..	..	..	..	..
7	Kangra .. ..	..	327	..	617
8	Hoshiarpur .. ..	61	243	2	404
9	Jullundur .. ..	110	111	27	190
10	Ludhiana .. ..	84	49	..	197
11	Ferozepore .. ..	78	220	4	313
12	Lahore .. ..	17	254	..	390
13	Amritsar .. ..	37	129	5	145
14	Gurdaspur .. ..	33	206	15	335
15	Sialkot .. ..	3	322	9	428
16	Gujranwala .. ..	9	284	16	511
17	Sheikhupura .. ..	11	279	..	241
18	Gujrat .. ..	25	230	..	382
19	Shahpur .. ..	51	405	..	575

No.	District.	Mileage of roads, metalled and unmetalled.			
		Class II (District Board roads receiving grants from Communications Board) roads.		Class III (District Board roads receiving no grants from Communications Board) roads.	
		Metalled.	Unmetalled.	Metalled.	Unmetalled.
20	Jhelum .. ..	11	261		710
21	Rawalpindi .. ..	31	270	..	556
22	Attock .. ..	10	281	6	474
23	Mianwali .. ..	..	82	2	433
24	Montgomery .. ..	30	326	8	1,027
25	Lyallpur .. ..	87	203	2	649
26	Jhang .. ..	11	236	1	369
27	Multan .. ..	32	390	..	1,181
28	Muzaffargarh .. ..	..	374	1	393
29	Dera Ghazi Khan .. ..	..	50	..	176
	Total .. ..	998	6,777	131	12,242

## TABLES IV, V(a) and V (b).

(Vide question No. A-1 (ii) of the questionnaire).

TABLE IV.

The principal bridges maintained from *provincial* funds are given below.

Name of road.	Name of river.	Length in feet.	District.	Remarks.
Grand Trunk Road ..	Markanda ..	1,060	Karnal ..	Near Shahabad.
	Tangri ..	432	} Ambala.	
	Ghaggar ..	420		
	Sutlej ..	2,200	} Jullundur.	
	East Beyn ..	280		
	Beas ..	1,800		
	Ravi ..	1,311	Lahore.	
	Palkhu ..	426	} Gurjranwala.	
	Chenab ..	2,415		
	Bhimber ..	902	Gujrat.	
	Jhelum ..	4,500	} Jhelum.	
	Dina Nulla ..	400		
	Bakrala Nulla ..	480	} Rawalpindi.	
	Bhai Khan ..	280		
	Sohan ..	1,185	} Attock.	
	Wah ..	360		
	Dhamrah ..	300		
	Haro ..	400		
	Indus ..	..		Combined road and railway bridge.
Lahore-Mianwali ..	Jhelum ..	..	Shahpur ..	Do. under construc- tion at Khushab.
Lahore-Loralai ..	Trimah ..	3,400	Muzaffargarh ..	Roadway crosses over rail- way bridge.
Lahore-Ludhiana ..	Sutlej ..	..	Lahore ..	New bridge under construc- tion.
Delhi-Montgomery ..	Sutlej ..	..	Ferozepore.	
Rawalpindi-Kohala ..	Jhelum ..	320	Hazara.	
Amritsar-Kulu ..	Chakki ..	..	Kangra.	
	Beas ..	..	} Mandi State ..	{ Victoria suspension bridge at Mandi. Suspension bridge at Pandoh.
	Beas ..	356		
Lyallpur-Sargodha ..	Chenab ..	..	Lyallpur ..	Combined road and railway bridge under construction at Chiniot.
Amritsar-Sialkot ..	Ravi ..	..	Amritsar ..	Combined road and railway bridge under construction at Dera Baba Nanak.

TABLE V (a).

*List of bridges over 100' long on district roads maintained from other than District Board funds.*

Serial No. of bridge.	Name of river, canal or nulla.	Name of road.	Remarks.
1	River Chenab .. ..	Jhang-Sargodha ..	Combined railway and road bridge.
2	River Sutlej .. ..	Jullundur-Ferozepore ..	Combined railway and road bridge.
3	Sirhind Canal. (Escape channel).	Moga-Bhagpurana ..	At Badhii (Canal bridge).
4	Ditto ..	Zira-Faridkot ..	Canal bridge.
5	River Ghaggar ..	Sirsa-otu-Rania ..	Canal weir.
6	Lower Jhelum Canal ..	Kuthiala Sheikhan Pindi Bahauddin, Mong.	Canal bridge.
7	Ditto ..	Rukan-Malakwal ..	Do.
8	Ditto ..	Phulerwan-Miana Gondal	Do.
9	Ditto ..	Bhalwal-Chakramdas ..	Do.
10	Lower Jhelum Canal (Northern Branch).	Sargodha-Mari-Johrian ..	Do.
11	Ditto ..	Sargodha-Sahiwal ..	Do.
12	Upper Jhelum Canal ..	Kharian-Dinga-Phalia ..	Do.
13	Ditto ..	Gujrat-Dinga ..	Do.
14	Ditto ..	Gujrat-Sahadiwal-Kunjah	Do.
15	Upper Jhelum Canal (Gujrat Branch).	Phalia-Sohawa ..	Do.
16	Ditto ..	Phalia-Miani ..	Do.
17	Ditto ..	Miani-Qadirabad ..	Do.
18	Sirhind Canal .. ..	Chandigarh-Kharar-Rupar.	At Rupar (Canal bridge).
19	Ditto .. ..	Samrala-Machhiwara ..	At Garhi (Canal bridge).

Serial No. of bridge.	Name of river, canal or nulla.	Name of road.	Remarks.
20	Sirhind Canal .. ..	Ludhiana-Samrala ..	At Nilon (Canal bridge).
21	Ditto .. ..	Ludhiana-Malerkotla ..	At Kaindhul (Canal bridge).
22	Ditto .. ..	Ludhiana-Rajkot ..	At Dhaypai (Canal bridge).
23	Ditto .. ..	Dakha-Rajkot ..	At Akalgarh (Canal bridge).
24	Ditto .. ..	Jagraon-Bassin ..	At Akhara (Canal bridge).
25	Ditto .. ..	Moga-Ramgarh ..	At Badhii (Canal bridge).
26	Sirhind Canal (Abohor Branch).	Bhagpurana-Ramgarh	At Phulewala (Canal bridge).
27	Sirhind Canal (Escape channel).	Moga-Bhagpurana-Bachu	At Gil (Canal bridge).
28	Sirhind Canal (Bhatinda Branch).	Ludhiana-Malerkotla ..	Canal bridge.
29	Agra Canal .. ..	Ballabgarh Chainsa ..	Do.
30	Western Jamna Canal ..	Karnal-Indri .. ..	Do.
31	Western Jamna Canal (Hansi Branch).	Hansi-Barwala ..	Do.
32	Ditto .. ..	Karnal-Pehowa ..	Near Kachwa.
33	Western Jamna Canal (Sirsa Branch).	Do. .. ..	Near Sagra.
34	Ditto .. ..	Karnal-Kaithal.	
35	Ditto .. ..	Karnal-Asand.	
36	Western Jamna Canal (Rohtak Distributory).	Rohtak-Gohana.	
37	Western Jamna Canal (Delhi Branch).	Sonepat-Gohana.	

Serial No. of bridge.	Name of river, canal or nulla.	Name of road.	Remarks.
38	Western Jamna Canal (Delhi Branch).	Sonepat-Sampla.	
39	Ditto ..	Panipat-Safidan.	
40	Western Jamna Canal (Sirsa Branch).	Bhattu-Fatehabad.	
41	Ditto ..	Fatehabad-Hissar.	
42	Ditto ..	Tohana-Barwala.	
43	Ditto ..	Kaithal-Jind.	
44	Upper Chenab Canal ..	Gujranwala-Pasrur.	
45	Ditto ..	Pasrur-Gujranwala.	
46	Lower Chenab Canal ..	Gujranwala-Kailaske-Akalgarh.	
47	Ditto ..	Wazirabad-Ramgarh-Vanike.	
48	Lower Chenab Canal (Upper Gugera Branch).	Nankana Sahib-Manawala.	
49	Ditto ..	Sheikhupura-Manawala.	
50	Upper Bari Doab Canal ..	Pathankot-Shakargarh.	
51	Ditto ..	Gurdaspur-Naushera ferry.	
52	Upper Bari Doab Canal (Kasur Branch).	Batala-Mukerian.	
53	Ditto ..	Batala Qadian.	
54	Upper Bari Doab Canal (Kasur and Sabraon Branch).	Batala-Sirigobindpur.	
55	Upper Bari Doab Canal ..	Batala-Aliwal-Fatehgarh.	
56	Ditto ..	Batala-Dera Nanak.	
57	Upper Bari Doab and (Main Canal and Kasur and Sabraon Branches).	Amritsar-Sirigobindpur.	

Serial No. of bridge.	Name of river, canal or nulla.	Name of road.	Remarks.
58	Upper Bari Doab (Lahore Branch).	Amritsar-Lopoke.	
59	Upper Bari Doab (Kasur Branch).	Amritsar-Gowindwal.	
60	Upper Bari Doab (Main Canal).	Amritsar-Bhikhiwind.	
61	Upper Bari Doab (Main Canal).	Kasur-Raiwind.	
62	Lower Chenab Canal (Jhang Branch).	Lyallpur-Aminpur.	
63	Lower Chenab Canal (Rakh and Gugera Branches).	Jarawnwala-Chiniot.	

TABLE V (b).

*List of bridges over 100' long on district roads maintained from District Board funds.*

Serial No. of bridge.	Name of river or nulla.	Name of road.	Remarks.
1	Shahjahangir Nulla ..	Gujrat-Jalalpur.	
2	Dwarah Nulla .. ..	Gujrat-Jalalpur.	
3	Bein Nulla ..	Jullundur-Nikodar.	



## TABLES VI AND VII.

(Vide question No. A.-1 (iii) of questionnaire).

TABLE VI.

The principal places on roads maintained from provincial funds where bridges are required are given in this Table.

Arterial No.	Name of road.	Name of river.	Approximate length.	District.	Remarks.
2	Lahore-Mianwali ..	Chenab ..	..	Shahpur ..	Boat bridge under erection.
3	Lahore-Bhakkar ..	Trinab (Jhelum & Chenab).	..	Jhang.	
4	Lahore-Loralai ..	Trinab .. ..	..	Muzaffargarh ..	Road now crosses on railway bridge.
		Indus ..	..	} Dera Ghazi Khan.	
		Rakhni ..	..		
6	Delhi-Montgomery	Ghaggar ..	..	Hissar.	
9	Tarnaul-Khushalgarh.	Indus .. ..	..	Attock.	
10	Fatehjang-Mianwali	Svan .. ..	..	..	
12	Jhelum-Talagang ..	Bunnab ..	..	Jhelum.	
13	Wazirabad-Jammu	Bhalaul ..	..	Jammu ..	In Kashmir State.
18	Jullundur-Dharamsala.	Nasrula Cho ..	..	} Hoshiarpur.	
		Hoshiarpur Cho	..		
		Sohan .. ..	..		
		Beas .. ..	..	Kangra.	
20	Ambala-Tibet ..	Ghaggar ..	..	Ambala.	
23	Sohna-Rewari ..	Sahibi ..	..	Gurgaon.	
31	Lahore-Moga ..	Sutlej ..	..	Lahore.	
32	Gujrat-Shahpur ..	Bhimber ..	..	Gujrat.	
33	Jaranwala-Okara ..	Ravi .. ..	..	Montgomery.	
34	Sialkot-Amritsar ..	Basantar Degh ..	..	Sialkot.	
36	Sonipat-Rohtak-Rewari.	Jumna.. ..	..	Rohtak ..	Bridge required opposite Baghpat road is correctly classed as an extension of the artery than as a branch from the Grand Trunk road.
38	ampbellpur-Pindi Gheb.	Haro .. ..	..	Attock ..	Estimate under sanction.
39	Toba Tek Singh-Sheikh Fazal.	Ravi .. ..	..	Montgomery.	
41	Kabirwala-Jhang ..	Ravi .. ..	..	Multan.	

TABLE VI—*contd.*

Other bridges might be suggested over the Indus near Mianwali or opposite Dera Ismail Khan, across the Chenab about halfway between Wazirabad and Talibwala, over the Ravi north-west of Montgomery, across the Sutlej near Sidhwan (to connect Jullundur with Jagraon) and again somewhere near Rupar, over the Beas between Gurdaspur and Mukerian, and across the Jumna opposite Karnal or Panipat to link up these places with Saharanpur or Kairana and Muzaffarnagar.

TABLE VII.

The principal places on roads maintained from the funds of District Boards where bridges are required are given in this Table.

*List of bridges required for main roads.*

No.	Name of river.	Name of road.	Remarks.
1	Sutlej .. ..	Garshankar-Una.	
2	Sutlej .. ..	Balachaur-Anandpur.	
3	Beas .. ..	Hajipur-Talwara-Jawalamukhi.	
4	Beas .. ..	Mukerian-Gurdaspur.	
5	Beas .. ..	Dasuya-Batala.	
6	Chenab .. ..	Vanike-Qadirabad-Khutiala Sheikhan.	
7	Chenab .. ..	Shorkot-Garhmharajah.	
8	Jhelum .. ..	Malakwal-Pind Dadan Khan ..	The railway bridge requires to be made fit for vehicular traffic.
9	Ravi .. ..	Gurdaspur-Sialkot.	
10	Ravi .. ..	Amritsar-Gujranwala.	

## TABLES VIII—X.

(Vide question No. A-1 (vi) of questionnaire).

Particulars of mileage of roads in charge of the P. W. D. and expenditure from provincial funds on communications under the various budget heads of account are given in Table VIII. When examining this Table please remember that the expenditure under grants-in-aid although booked under 41-Civil Works is not incurred on roads in charge of the P. W. D. but on roads in charge of District Boards.

TABLE VIII.

Expenditure from provincial funds (in thousands of rupees).											
Year.	Mileage of roads in charge of P. W. D.		41-Civil Works.						60-Capital. Original works.	Total.	
			In charge of P. W. D.			Grants-in-aid.					
	Metall- ed.	Un- metalled.	Original works.	Repairs.	Total.	Original works.	Repairs.	Total.	Original.	Repairs.	Total.
	1913-14 ..	1,098	706	943	1,177	2,120	..	..	..	943	1,177
1923-24 ..	1,176	762	395	2,669	3,064	337	..	337	732	2,669	3,401
1924-25 ..	1,478	963	321	2,928	3,249	180	..	180	501	2,928	3,429
1925-26 ...	1,677	1,323	1,825	3,558	5,383	235	450	685	3,037	4,008	7,045

TABLE IX.

Particulars of mileage and expenditure from District Board funds are given in this Table.

Year.	Mileage of roads in charge of District Boards.		Expenditure (in thousands of rupees).		
	Metalled.	Unmetalled.	Original works.	Repairs.	Total.
1913-14 ..	1,517	20,132	302	1,176	1,478
1923-24 ..	1,480	20,970	384	1,632	2,016
1924-25 ..	1,454	20,813	281	1,590	1,871
1925-26 ..	1,269	20,413	338	1,662	2,000

The totals in Tables VIII and IX are collected in Table X.

The expenditure shown in Table IX does not include the sums expended from the grants-in-aid, and is therefore the expenditure from District Board funds only.

TABLE X.

Year.	Mileage of roads.		Expenditure (in thousands of rupees).			Remarks.
	Metalled.	Un-metalled.	Original works.	Repairs.	Total.	
1913-14 ..	2,615	20,838	1,245	2,353	3,598	Table X collects the total of tables VIII and IX. The mileage of roads does not include roads along canal banks, nor village roads.
1923-24 ..	2,656	21,732	1,116	4,301	5,417	
1924-25 ..	2,932	21,776	782	4,518	5,300	
1925-26 ..	2,946	21,736	3,375	5,670	9,045	

TABLE XI.

Form referred to at question No. A.-I (vi) of questionnaire.

PUNJAB.

Detail of expenditure on road maintenance/construction in 1926-27.

Class.	Mileage to nearest ten.			Provincial expenditure Rs. 1000's.			Local fund expenditure Rs. 1000 's.			Total expenditure Rs. 1000's.	
	Surfac- ed.	Unsur- faced.	Total.	Sur- faced.	Unsur- faced.	Total.	Sur- faced.	Unsur- faced.	Total.	Sur- faced.	Unsur- faced.
1	2	3	4	5	6	7	8	9	10	11	12
1. Roads in charge of the P. W. D.	1,770	920	2,690	3,312	327	A. 3,639	..	..	..	3,312	327
				2,039	63	2,102				2,039	63
2. Roads in charge of District Boards.	1,130	19,020	20,150	B. 712		712	B. 1,665		1,665	2,377	B.
				649	58	707	685	96	781	1,334	154
Total ..	2,900	19,940	22,840	4,351		4,351	1,665		1,665	6,016	
				2,688	121	2,809	685	96	781	3,373	217

A. (i) Excludes figures of expenditure on boat bridges and ferries and arboriculture.

(ii) Excludes figures of expenditure under " 60-Civil Works Capital Expenditure " which amount to Rs. 28,05,292 on Nili Bar Works, Ferozepore bridge and Mandi Gatta Hill Road.

B. Figures under surfaced and unsurfaced are not available separately.

## Replies to the questionnaire submitted by the Government of Burma.

### A.—ROAD DEVELOPMENT.

1. A Map\* of Burma to the scale of 16 miles to the inch is attached showing roads classified as “ Main ” and “ District ”, and under 5 types, viz. :—

1. Metalled,
2. Surfaced,
3. Unsurfaced,
4. Mule roads and Bridle paths, and
5. Tracks.

This is the departmental classification, which has been adopted in Burma.

A “ Metalled road ” is one having a travelling surface of stone metal, and is bridged throughout.

A “ Surfaced road ” has a travelling surface of laterite, kankar, or gravel, and is bridged.

An “ Unsurfaced road ” is a made road, not surfaced with any of the above materials, and not necessarily completely bridged.

A “ Mule road ” or “ Bridle path ” is a graded road suitable for pack animals.

A “ Track ” is any cleared route not embanked or bridged.

Roads falling under two of these categories are classified under the head to which the greater length of the road belongs.

A note on the Communications of Burma (excluding the Shan States) which was prepared for the Royal Commission on Agriculture is attached (Appendix I) and will explain a number of the points raised in the questionnaire.

(i) There are approximately 7,130 miles of main road, and 2,180 miles of district road in Burma and 2,805 miles classified as “ main ” are in the Federated Shan States. Of the total of 12,115 miles, approximately 2,200 miles are metalled and 9,915 unmetalled.

(ii) and (iii). A statement is attached (Appendix II) showing the bridges in each district of the province which have one or more spans of 80 feet or over, and also the bridges of this size which are required. The Delta districts have been omitted since they depend principally on water communications.

(iv) The Public Works Department is responsible for “ main ” roads, and District Councils, or, where the Burma Rural Self-Government



Act does not apply the Deputy Commissioners, are responsible for "district" roads.

(v) The construction and maintenance of "main" roads have hitherto been financed by the local Government from revenue and from rice control profits which are now exhausted. Future construction will be financed from loans. The construction and maintenance of "district" roads are financed by district revenue supplemented by grants from the local Government.

(vi) The expenditure on metalled and unmetalled roads for the 4 years mentioned is given in the statement at Appendix III.

(vii) Please see Appendix IV.

2. (a) The area of the Province is 2,43,206 square miles.

(b) The total population according to last census is 13,212,192.

(c) The rural population is 11,228,703.

(i) The mileage of metalled roads expressed in terms of 100 square miles of area and 100,000 of population, is therefore, as follows :—

$$(a) \frac{2,200}{2,627} = .83.$$

$$(b) \frac{2,200}{132} = 16.6.$$

$$(c) \frac{2,200}{112} = 19.6.$$

(ii) And the mileage of unmetalled roads expressed in the same terms is :—

$$(a) \frac{9,915}{2,627} = 3.7.$$

$$(b) \frac{9,915}{132} = 75.1.$$

$$(c) \frac{9,915}{112} = 88.5.$$

3. (a) The average total expenditure on roads from provincial revenue for the three years 1924-27 was Rs. 1,01,08,127. These figures

do not include any allowance for establishment and should be increased by  $24\frac{1}{2}$  per cent. to cover establishment, tools and plant. The total provincial revenue was Rs. 11,05,58,763 :—

- (i) The percentage of the first of these sums to the second is 9.14.
- (ii) The percentage of expenditure on local fund to local revenue is 35.19.
- (b) (i) The incidences per head of total expenditure are :—
  - (1) Provincial per head of total population Rs. 0.76.
  - (2) Provincial per head of rural population Rs. 0.90.
  - (3) Local funds per head of rural population 2 annas 5 pies.

4. No traffic statistics are maintained. Occasionally, in order to support demands for funds to carry out road improvements, a census of traffic is taken for a short period on the particular road concerned.

5. (a) The road system of the province at present lacks continuity. From Rangoon the trunk road in the Irrawaddy Valley extends only as far as Allanmyo, a distance of 222 miles, and in the Sittang Valley extends as far as Paungdawthe, a distance of 84 miles. Isolated sections of trunk road exist as follows :—

From Myingyan on the Irrawaddy eastwards into the Southern Shan States.

From Mandalay to Maymyo and into the Northern Shan States.

From Thabeitkyin on the Irrawaddy to the Ruby Mines.

From Kyaikto to Martaban.

From Moulmein to Amherst.

From Kaleinnyaung in the Tavoy district to Mergui.

From Pakokku towards Kan, and

From Myinmu in the Sagaing district to Ye-U in the Shwebo district.

The note on communication (Appendix I) explains what is being done towards co-ordinating the road system.

(b) There is a track along the coast of the Bay of Bengal, running north from Akyab towards Chittagong and thence into Bengal, which is used principally by coolies who migrate yearly into Burma seeking work. At Gundan Khal a foot-bridge exists over a stream which forms the boundary of Burma. Proposals for the construction of a cart road along this route were rejected by the roads committee of the Burma Communications Board as there were many more urgent demands for roads in other parts of the province. Arrangements were also made with the Bengal Government in 1924 for the erection of a more substantial foot-bridge at Gundan Khal, but the work has not yet been taken in hand.

At Mawlaik in the Upper Chindwin district a track exists through the Kabaw Valley to Tamu on the way to Imphal in Assam. The construction of a road along this route was considered in 1922 but owing to lack of support from the Government of India, the matter was dropped.

There is a mule track connection between Myitkyina and the portion of the province of Yunnan north of Teingyueh. There is also a trade route which is much used by mule caravans between Bhamo and Teingyueh. 17 miles of this are metalled road and the remainder is a mule track.

Bhamo is also connected with China *viâ* Namkhan, a large town in the Northern Shan States ; 13 $\frac{1}{4}$  miles of this road are passable to motor cars, and the remaining 45 miles is a mule track which is being replaced by a cart road. It is intended to metal the whole length from Bhamo to Namkhan.

The cart road from Myingyan on the Irrawaddy extends through Taunggyi in the Southern Shan States to Kentung, which is connected also to Chengmai in Siam. There is also a trade route of considerable importance from Kyondo near Moulmein, through Kawkareik and Myawaddy to Siam.

6. The main defects in the existing road system, viewed from the stand-point of motor transport, are the comparatively insignificant length of surfaced roads, the absence of bridges over large streams and broad sandy stream-beds, and the fact that the great majority of the existing bridges are wooden structures which are nearing the end of their lives and are quite unfitted to carry fast traffic. Lengths of roads suited for motor transport are interspersed with sections not so suited and there is no trunk road worthy of the name in the province. It is not practicable for the ordinary motorist to go from Rangoon to Mandalay by motor or even from Sagaing to Shwebo. There is no road from Rangoon to Moulmein or between the Irrawaddy Valley and the Arakan division. The programme of work which has been drawn up by the roads committee of the Burma Communications Board will improve matters in the case of the existing roads but it will not, to any large extent, create roads where none exist at present.

7. (a) The demands for motor transport are shown by the fact that motor buses now run in the dry season over rice-fields and unsurfaced roads all over Lower Burma, and on unsurfaced roads leading to railway stations and steamer landing places all over Upper Burma. It follows that the needs of motor transport will not be sufficiently provided for until there is a net-work of metalled roads throughout the country.

(b) and (c). The development of roads in Burma must be carried out from loans and the total amount which can be raised on loan is limited by the extent to which provincial revenues can meet the loan charges. Development must therefore stop long before it has reached completion unless some additional source of revenue is provided.

8. The province of Burma is at present so undeveloped that for many years to come the construction of new roads will, in practically every case, bring additional traffic to the railways by reason of the fact that new areas will be brought under cultivation. In many parts of the province, production is at present limited to the actual requirements of the local population and nothing is grown for export. All questions regarding road and railway development are brought before the Burma Communications Board. The Agent of the Burma Railways Company, Limited, is a member of that Board and this appears to be sufficient for the purpose of co-ordinating road and railway development.

9. (a) The Government Test House, Alipore, is not used to any great extent for testing materials required for Burma, unless the materials are

imported from India. The cost of steamer freight from India to Burma is so high compared to the cost of freight direct from Europe that in most cases it pays Burma to import direct. But apart from this fact local facilities exist at the Government Technical Institute, Insein, and additional facilities presumably will exist at the Engineering College of the Rangoon University for road materials to be tested. It would, however, be of assistance to Burma if the results of the use of such materials as asphalt, pitch and tar, after trial on the roads in India, are communicated.

(b) (i) and (ii). Tests in Burma have been confined to road metal attrition tests and experiments with various kinds of pitch and tar for surfacing.

(c) It used to be customary for professional papers on engineering works, experiments and research which had been carried out, to be printed by the province concerned and circulated to other provinces. This practice has to a large extent fallen into abeyance since the institution of Engineering Congresses to which such information is now usually submitted, but there is no doubt a considerable amount of information of this nature buried in the files of each province which, though unsuitable for presentation to a Congress meeting, will be of use to other Government engineers if circulated in accordance with the previous custom.

(d) The Lecturer on Geology of the Rangoon University is at present investigating the rocks of Burma from the point of view of their value as building stone and road metal. The results of this investigation undoubtedly will be of little use to other provinces in India, but the same will apply to other similar investigations or research carried out in any other province. However, it certainly seems advisable to provide for co-ordinating and distributing the results of such experiments and research, and a limited allotment might be made to each province for this purpose from the central fund.

#### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

1. The following statement gives the information required for each of the years 1914, 1924, 1925, 1926 and 1927.

##### *Report of the Increase in Burma in Motor Transport.*

Particulars.	1914.	1924.	1925.	1926.	1927.
Private cars .. ..	239	976	1,527	2,193	1,472
Taxicabs .. ..	..	199	209	228	201
Motor cycles .. ..	195	142	219	223	173
Heavy lorries .. ..	3	22	40	20	29
Omnibuses .. ..	..	..	..	..	432
Light lorries .. ..	..	..	..	..	633
Total .. ..	437	1,339	1,995	2,664	2,940

It is impossible to state the number of bus services. But services are frequently carried on by taxis, and there are bus services wherever there is a road fit for motor vehicles to run on. Before 1927 omnibuses and light lorries were registered as private cars, so that the separate figures are not available for these years.

2. The number of cars registered will continue to increase with an increase in the mileage of roads on which it is possible to run motor cars.

3. Provincial taxation on motor transport consists of registration and registration renewal fees, and licence fees for hired motor vehicles. Registration fees are assessed according to the class of vehicle. The rates are as follows :—

(1) *Rates under Burma Motor Vehicles Rules, 1915.*—

Rs. 4 for a motor cycle.

Rs. 16 for a motor car or light lorry.

Rs. 32 for a heavy motor vehicle.

(2) *Renewal fees.*—

Rs. 2 for each annual registration except for heavy motor vehicle for which the fee is Rs. 16.

(3) *Rates under Hired Motor Vehicle Rules, 1927.*—

Rs. 5 per passenger per annum, or if the hired motor vehicle is used for carrying goods, Rs. 5 per 40 viss per annum subject to a maximum of Rs. 60.

Licence fees for hired motor vehicles are based on the number of passengers carried. Some municipalities differentiate between wheel tax on motor vehicles and wheel tax on other vehicles. District Boards do not tax motor transport.

4. The special taxation on motor transport is not definitely allocated to expenditure on roads. It is credited to general revenues, either provincial or municipal, as the case may be.

5. So long as the expenditure on roads vastly exceeds the receipts from taxation on motor transport, there does not seem to be any advantage in earmarking the proceeds of the latter for roads. The question of earmarking will not arise unless and until it is proposed to establish a separate road fund to be managed by a Provincial Road Board. The local Government is prepared to give the assurance that for an indefinite number of years to come the total expenditure on roads in Burma will exceed by a large amount the proceeds of taxation on motor transport, whether imposed by the Central Government or the provincial Government or by local bodies.

6. (a) So far as Burma is concerned, there is no reason whatever why there should be any central taxation on motor transport. The motor vehicles on which customs import duty is levied in Burma are all used in Burma, and, if it is proposed by the Central Government to earmark receipts from such duties for expenditure on roads, they should, in the case of Burma, be credited direct to provincial. It would, however, be preferable to abolish import duties on motor vehicles altogether and to levy taxation on motor transport, in a form which would take into account the extent of use made of the roads. If import duty on motor vehicles is



retained, so far as the other provinces of India are concerned, it must remain a central tax.

(b) So far as Burma is concerned, the most suitable form of provincial taxation on motor transport would be a tax on the quantity of petrol consumed. The necessary information on the subject can be obtained from the various oil companies which market petrol. A certain quantity of petrol is used for lamps and for motor-boat engines. In the case of the latter, the use of petrol is generally confined to starting the engines, which subsequently run on kerosene, or, as in the case of semi-diesel engines, on crude oil. Registration fees for motor vehicles and licence fees for hired motor vehicles should ordinarily be fixed at rates not more than sufficient to cover the cost of administration ; they should not be regarded as a source of revenue.

(c) There should be no local taxes on motor transport. Local bodies should receive assignments from provincial revenues towards the upkeep of their roads.

7. A reference is invited to the Burma Government's General Department letter No. 182-N.26, dated 1st July 1927, to the Secretary to the Government of India, Department of Commerce (Appendix V), in which the Burma Government supported the proposal of the Bombay Government for the imposition of an additional excise duty on petrol.

8. The most appropriate method of levying import duty on motor vehicles is by a tax *ad valorem*. Registration fees should vary with the class of vehicle (motor cycles, motor cars ; motor lorries) and licence fees on hired motor cars and buses should be assessed on seating capacity.

9. The main taxation on motor transport should be provincial, and the fixation of the rate of taxation should be at the discretion of the local Government. The question of fixing a maximum rate of taxation for different authorities will then not arise.

10. If effect be given to the local Government's views on the subject of taxation as set out in the answer to question 9, this question does not arise.

11. The local Government considers that revenue from taxation on motor transport should be credited to a separate fund in each province for expenditure on roads and that all allotments made from general revenues for the same purpose should also be credited to the same fund.

12. No amendment of the Devolution Rules is necessary. The object can be secured by an order of the Governor General in Council under Rule 14 (1) (h) of the Devolution Rules.

13. (a) So far as Burma is concerned any share given to the province of the revenue from central taxation should be given in the form of a lump sum grant for expenditure by the local Government.

(b) So far as Burma is concerned, the proceeds of any central tax on petrol should be allocated according to the consumption in the province.

14. Local bodies alone should have the power to tax vehicles other than motor vehicles.

15. There is no road cess in Burma.

## C.—ROAD BOARDS.

1. Burma has a Communications Board with a roads committee and a waterways committee. It was originally constituted in November 1923, and its present constitution, membership and functions are described in Burma Public Works Department, Resolution No. 1177/41-C. C., dated the 21st March 1927 (Appendix VI). The Board has been of great value in securing from the Legislative Council the supply of the funds necessary to carry through the programmes of work which have been discussed and settled by the Board.

2. So far as Burma is concerned a Central Road Board is not required.

3. In view of the reply to question 2, this question does not arise.

4. It is suggested that co-ordination could be obtained by a yearly conference of representatives of each province. Please see also the remarks in the replies to Question A.-9 (c) and (d).

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## APPENDIX I.

EXTRACT FROM A COLLECTION OF PAPERS WRITTEN BY BURMA GOVERNMENT  
OFFICIALS FOR THE ROYAL COMMISSION ON AGRICULTURE.

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*Note on the communications of Burma prepared by Mr. C. Innes, Chief Engineer to the Government of Burma, Public Works Department (Roads).*

The systems of communication in Burma have developed along lines governed largely by the outstanding physical features of the province. Its principal rivers flow from north to south in valleys separated from each other by mountainous country which presents formidable obstacles to the construction of a general net-work of roads or railways.

The Arakan division, a narrow strip of territory on the eastern coast of the Bay of Bengal, is separated from the valley of the Irrawaddy by the Arakan Yomas and the mountainous country on the south of Bengal and Assam : the Pegu Yomas, running northwards for about 200 miles from deltaic country around Rangoon, separate the Irrawaddy from the Sittang River : on the east of the upper reaches of the Irrawaddy are the Kachin hill tracks and the hills of the Federated Shan States : the Salween river flows for about 100 miles through Burma before entering the Gulf of Martaban near Moulmein : and the mountains of the Shan States are continued south through the Tenasserim division to Victoria Point.

The tendency has been therefore for the trading population to settle on those areas which have natural means of inter-communication by water ; and only 10 out of the 38 present district headquarters cannot be reached at all times of the year by ocean steamer or river launch.

Before the British occupation, Burma was practically roadless. Such jungle tracks as existed appear to have been made with the primary object of facilitating raids on neighbouring rulers.

The occupation of Arakan and Tenasserim, with their extensive seaboard and numerous navigable creeks and rivers, did not necessitate the construction of roads : and it was not until over a quarter of a century later that the construction of a track from Prome, across the Arakan Yomas, to Taungup was taken in hand. This track is now followed by the telegraph line, but is used otherwise only by cattle drovers.

Thayetmyo, on the Irrawaddy, and Toungoo, on the Sittang, were then the principal frontier posts of British Burma ; and a " frontier road " running west from Thayetmyo was constructed, which still exists for 45 miles as far as Mindon. Another road was opened out from Myede, on the Irrawaddy opposite Thayetmyo, eastward, across the Pegu Yomas, to Toungoo ; and 26 miles of it, as far as Shwebandaw, still exist.

In 1861 another road was constructed from Myede, through Prome, to Paungde ; and about 10 years later it was continued on to Rangoon. But in the years 1874-77 the construction of a metre gauge railway along 100 miles of this road, to connect Prome with Rangoon, necessitated making a new road for this length.

About this time Pegu was connected to Rangoon by road ; and works proceed on its continuation to Toungoo. A road was also started from Moulmein southwards, the intention being to connect Toungoo with Ye in the Amherst District, but the work was stopped long before its completion.

The opening of the railway to Toungoo in 1885 appears to have altered the policy regarding road construction ; the railway was intended to take the

place of a trunk road, and attention was directed towards constructing feeder roads to it, for purposes of trade as well as administration.

The roads which had been constructed up to this time required bridges, surfacing, and numerous other improvements, but these works were carried on only spasmodically as the available funds were required to provide roads in the newly acquired territory of Upper Burma. Military requirements there necessitated the construction of 600 miles of main road to serve new cantonments and frontier posts : Fort Stedman in the Southern Shan States was connected with Myingyan on the Irrawaddy ; Mandalay was connected with Lashio in the Northern Shan States ; Shwebo was connected with Kyaukmyaung on the Irrawaddy : and a road was made from Thabeitkyin on the Irrawaddy to the sanitorium at Bernardmyo near the Ruby Mines.

In 1890 trouble in the Chin Lushai country necessitated the construction of a road, 144 miles long on the west of the Irrawaddy, from Pakokku to Kan ; while several hundred miles of mule tracks were made to serve the military police outposts on the north-east frontier.

In the meantime railway construction had been pushed forward, and the line was opened to Mandalay in 1889. The Mu valley extension was begun in 1890, and opened in 1899.

Between 1873 and 1900 three canals were cut connecting creeks at the mouths of the Irrawaddy, Rangoon, Pegu, and Sittang rivers, in order to provide an inland waterway for country boats. The Twante canal, 23 miles long, has been widened since and is still used ; the Pegu-Sittang Canal, 38 miles long, is now used principally by timber rafts : and the Sittang-Kyaikto Canal, 15 miles long, fell into disuse when the railway was constructed to Martaban, and has been abandoned on account of encroachments by the Gulf of Martaban.

At the beginning of the present century the communications of Burma therefore consisted of about 1,100 miles of metre gauge railway line and 8,000 miles of roads of all classes, in addition to the inland waterways.

Railway construction has progressed since, and the mileage is now approaching 2,000 ; the mileage of roads is now about 10,000 : but while the length of inland waterways has not increased appreciably dredgers are employed on improving channels and keeping them in a navigable condition.

The length of roads at one time was as much as 12,000 miles, but this figure included numerous tracks which had fallen into disuse and were not worth while maintaining ; and as the country developed it was realised that the replacement of timber bridges—whose life is not more than 25 years—by structures of permanent materials, and general improvements to the formation and travelling surface of all roads were necessities. Some doubt also began to be cast on the theory that the railway could take the place of the Main Trunk Road—a theory which has been proved since to be fallacious—and steps were taken in 1912 to initiate a scheme for the construction of an organised system of roads for the province.

This scheme, which was estimated to cost Rs. 460 lakhs, was examined in 1916 by an advisory committee appointed by the local Government ; but the information available was considered to be insufficient, and two officers were placed on special duty to examine the requirements of each district. The results of their enquiries were published as "Road Proposals", and were examined in 1920 by a communications sub-committee which made recommendations involving the expenditure of Rs. 8 crores. These recommendations were accepted by the local Government.

The average yearly expenditure on roads for the decade ending in 1910 was Rs. 18 lakhs on original works, and Rs. 21.2 lakhs on repairs : and for the decade ending in 1920 it was Rs. 18.8 lakhs on original works and

Rs. 33 lakhs on repairs. Financial stringency reduced the expenditure on original works in the four years 1909-1913 to below Rs. 12 lakhs yearly, but repairs have not fallen below Rs. 20 lakhs except in the year 1900-01. These figures include expenditure on "district" as well as on "provincial" roads.

In 1919 Rs. 75 lakhs were earmarked for expenditure during the next 3 years on road improvements : and in 1922 Rs. 244 lakhs were earmarked from the profits derived from the scheme of rice control, to be spent on conferring permanent benefits on the agriculturists of the province.

In 1923 the Standing Advisory Committee on communications was replaced by a Communications Board which was given powers of administration; and the roads committee of this Board has assisted Government in shaping its policy for the development of road communications. Since 1924 it has held 26 meetings, considered 241 projects, and approved of work estimated to cost Rs. 467 lakhs. The most important item it has sanctioned is a programme of trunk road construction which is to be completed in 1931. This includes through roads from Rangoon to Mandalay, one *via* the Sittang Valley, and one *via* the Irrawaddy Valley : a road from *via* Moulmein to Tavoy ; and the first section of the trunk road from Sagaing to Myitkyina on the west bank of the Irrawaddy river. A combined road and railway bridge is likely to be constructed across the Irrawaddy at Sagaing in few years' time ; and it will form the connecting link between roads on the east and west of the Irrawaddy.

As a result of this new policy, expenditure for the 7 years ending 1926-27 has averaged Rs. 43 lakhs on original works and Rs. 43.5 lakhs on repairs. The expenditure for 1926-27 on provincial main roads only was Rs. 57.2 lakhs on original works and Rs. 38.9 on repairs.

Approximately 6,000 miles are "main roads" maintained by the local Government : and 4,000 miles are maintained by local authorities as "district roads". Until recently the length of district roads varied between 2,000 and 3,000 miles, and there was no clear distinction between these two classes of road ; but it has been laid down since the introduction of the Reforms that "main roads" shall be those the importance of which is not confined to a single district : and that the principal road connecting a township or sub-divisional headquarters with its parent district headquarters shall be classed as "main".

"District roads" are those the importance of which is confined to the particular district in which they lie.

Waterways are classified similarly.

Prior to 1923 the Public Works Department carried out most "district road" works and repairs ; but this responsibility now rests with District Councils in those areas to which the Burma Rural Self-Government Act applies, and with Deputy Commissioners in areas excluded from this Act. Those local authorities, however, who have not the necessary staff and plant, may have their roads maintained by the Public Works Department.

The estimated cost of maintaining these "district roads" at their present standard, including an allowance of 24 per cent. for establishment and tools and plant, is Rs. 27½ lakhs yearly, and the local Government contributes Rs. 17 lakhs for this purpose.

The average annual Capital Expenditure on "district roads" for the last four years has been Rs. 6.7 lakhs, and in order to prevent works being carried out, which the Councils have not the funds to maintain, such expenditure is limited to Rs. 6½ lakhs yearly for the province, the local Government contributing the funds for approved works, which are carried out by the Public Works Department.

Besides being classified under "Fund Heads", Roads are classified under "Departmental Heads" which indicate the standards up to which they are maintained, *viz.* :—

- (a) 'Metalled roads', having a travelling surface of stone metal, and bridged throughout.
- (b) 'Surfaced roads', having a travelling surface of laterite, kankar or gravel, and bridged.
- (c) 'Unsurfaced roads' having a made formation, but not surfaced and not necessarily completely bridged.
- (d) 'Mule roads and Bridle paths' which are graded roads suitable for pack animals.
- (e) 'Tracks', which are any cleared routes with no formation or bridges.

Roads falling under two of these categories are classified under the head to which the greater length belongs ; but due to the transition state which roads of the province have reached, it is not possible to give accurate figures showing the lengths which fall under each of these classes.

About two hundred miles of frontier mule roads are in process of conversion to roads of classes (a) and (b) ; while several hundreds of miles of roads of classes (b) and (c) are gradually coming to the standard of class (a). At present there are approximately 2,500 miles of metalled roads and 7,500 miles of unmetalled road ; of the latter approximately 2,300 miles are mule road.

As far as agriculture is concerned, mule roads are of little importance. They are confined to the hill tracts, and are used by either pack bullocks or mules carrying merchandise across the frontier and to the hill tribes ; but many of them are used principally for rationing frontier posts.

The mileage of the remaining roads, which benefits mining and forest industries is small compared with the mileage which benefits agriculture. The Forest Department and lessees construct the roads required exclusively for transport of forest produce : but the mining districts of Tavoy and Mergui have a fair mileage of road constructed during the war to encourage wolfram mining. These roads now meet the requirements of tin mining which has taken its place.

The general standard of many of the roads leaves much to be desired, but they serve their purpose as long as the only means of transport is the Burmese bullock cart, which is capable of overcoming almost insuperable obstacles.

At various times the construction of mono-rails, bullock tramways, and similar form of transport has been suggested, but such light railways as have been constructed have proved failures. The cultivator's principal means of transport is the cart to which he yokes his bullocks after their work in the fields is finished ; and he naturally uses this slow, but cheap means of transport whenever possible.

In recent years however the bullock cart has been supplanted to a certain extent by the motor car, especially for passenger transport : and as soon as a road reaches a standard which makes the use of motor cars on it at all possible, bus services, financed privately, are immediately started, connecting the surrounding villages with the nearest town, steamer ghat, or railway station.

The extent to which this change is taking place is indicated in the increasing number of motor vehicles which is being imported into Burma :—

Year.					Number of motor vehicles imported.
1917	..	..	..	..	305
1918	..	..	..	..	100
1919	..	..	..	..	408
1920	..	..	..	..	1,525
1921	..	..	..	..	1,157
1922	..	..	..	..	824
1923	..	..	..	..	1,043
1924	..	..	..	..	1,339
1925	..	..	..	..	1,995
1926	..	..	..	..	2,664

In some localities this bus traffic has affected considerably the passenger earnings of the railway, but it is not likely to affect that takings on goods which are carried much cheaper by rail than by any other form of transport.

Surplus produce beyond local requirements is carted to the nearest railway or riverine station during the dry weather, to be stored there until either the market is favourable or railway wagons or boats are available.

The railway stations are spaced as a rule from 3 to 5 miles apart, but a large number of these can be approached only in the dry weather by cross country cart-tracks. Therefore the construction of more railway station feeder roads to a standard suitable for use during the rains would assist materially in distributing produce more evenly along the railway, and would obviate the present necessity for it to be carted only during the dry season.

A suggestion has been made that access to station yards would be improved, and congestion of traffic relieved, if, at the same time as the railway land is acquired, lands were acquired for a road along each station yard boundary. The opening of a railway station must cause the value of surrounding land to appreciate; and this proposal appears to deserve consideration. The congestion which follows when mills and residential buildings are built close up to the station boundary is illustrated at Thingyangyun, on the outskirts of Rangoon, and at many other towns on the main railway lines.

The position as regards feeder roads to river steamer ghats is different. The depth of water and position of sand banks and shoals, on which the calling places depend, vary continuously on the larger rivers: and it is customary for steamers to call at any intermediate place where there is cargo. Most of these calling places are under high flood level, and the cost of constructing roads to them would be prohibitive. At the principal calling places 'flats' are provided, or landing stages have been erected with approach roads to high water level.

The main roads now under construction follow in most places the general alignment of established cart-tracks; but when they run in the same direction as a railway they are, whenever possible, within 2 miles of it, and run up to 10 miles on one side, cross it at the principal towns, and run a similar distance on the other side. They thus form lateral feeders to which subsidiary feeder roads of reasonable length may be constructed from villages on either side of the line, to connect with the principal stations.

Main roads have a formation 22 to 24 feet broad, the central 12 feet of which are metalled with stone: but where the traffic is light, and laterite



or gravel is available locally, these materials are used for surfacing. As the traffic increases road metal can be laid on this laterite as a foundation.

Bullock carts rapidly wear the surface of a road and form longitudinal ruts which interfere with the use of the road by other forms of traffic. The Burmese bullock usually is unshod and therefore prefers a soft travelling surface; the maintenance of the metalled surface is assisted also by the provision of an earthen berm road running along the side of the metalled road. Shade trees are planted where required on each side of the road at 60 feet intervals.

The permanent bridges are designed to carry a single train consisting of a 10-ton tractor with three 6-ton trailers, or a steam-road-roller weighing 12-ton. They have a 16 feet broad roadway, but a number of the older bridges have only 11 and 12 feet roadways which do not allow vehicles to pass on them.

The cost of constructing these roads varies from Rs. 50,000 per mile for a tarred surface in inundated country where a high embankment is necessary, to Rs. 30,000 per mile in the hills where stone or laterite is obtained locally. Their maintenance costs vary similarly with the locality from Rs. 5,000 to Rs. 1,500 per mile yearly.

Where motor traffic is heavy the macadam surface is grouted with pitch which effects a considerable saving in maintenance; but this surface is more expensive to maintain under heavy cart traffic, and in such cases the berm road is metalled for use by slow cart traffic.

A large portion of the cost of constructing main roads goes on bridging: and a considerable number of major bridges has still to be constructed. In the meantime ferries over perennial rivers, and causeways in the dry zone, take their place. Following on this most necessary provision, main roads require surfacing with stone metal. This is a lengthy process which depends on the means which exist for transporting the material. To facilitate this the principal quarries have been chosen as close as possible to the railway: and the material is carried on it for distances up to 200 miles; it is then transported on bullock carts to the road side.

The more important district roads are made to a similar standard, but the majority of them are not more than 18 feet broad and are unsurfaced, or surfaced with sand or gravel, 10 feet broad. The bridges as a rule are of wood, and capable of carry 4-ton loads if kept in good order. These roads cost from Rs. 8,000 to Rs. 12,000 per mile to construct, and Rs. 150 to Rs. 750 per mile yearly to maintain.

Until the District Councils have had more experience of road work and employ qualified staff, much improvement in district roads cannot be expected. There is also the tendency to spend the available funds on constructing new roads instead of on maintaining the existing roads, which as a rule are isolated from each other and scattered over a large area. The improvements they require are similar to those for main roads, but in view of the cost of maintaining metalled roads in districts where stone is not obtained within a short distance, it is not advisable to metal them until the amount of traffic makes this absolutely necessary. Local sand, kankar, laterite or gravel suffice as surfacing: and road hones or split-log drags can be used with advantage to level the surface and maintain the road at its proper camber.

The more important towns have municipal or town committees which are assisted by Government in the maintenance of main roads which pass through their territories. But village roads usually are only dry weather cart-tracks through the paddy fields: and in the plains during the rains inter-village communication is limited to foot-paths along the *kazins* of the paddy fields.

Before a road of any kind can be constructed it is necessary to reserve for it a sufficient breadth of land ; but this fact is not generally recognised by the villager, who builds his fence close up to the cart-track ; or by the cultivator who appears to be reluctant to give up any land at all for this purpose. A strip about 50 feet broad therefore appears to be the first requirement towards improving these roads ; the formation of the travelling surface above flood level, or with the necessary side drains, can follow ; and later on they can be surfaced with any local sand or gravel which is available. Streams and drainage crossings can be forded in the first instance : later on wooden bridges, erected and maintained by local carpenters, can be constructed.

The immediate action being taken to meet the requirements of various districts for improved communications is briefly as follows :—

A main road is under construction from Rangoon, running north-east, to the Pegu district border to serve the area in the Insein district on the right bank of the Pegu river.

In the Hanthawaddy district existing roads are being improved, and a new road is likely to be constructed between Kayan and Okkan. This district, like the Pyapon, Myaungmya, Bassein, and Ma-ubin districts is well served by water communications, but the construction of the remainder of the main road to connect Bassein with Henzada is under consideration. Improvements to roads in this area can make little progress until an adequate supply of good surfacing materials has been obtained locally.

In the Tharrawaddy and Prome districts, metalling the Main Trunk Road and erection of permanent bridges are the principal requirements, and they are in progress.

The Main Trunk Road is under construction for 45 miles through the Pegu district, across paddy fields subject to floods : and 65 miles of district road require widening from bridle paths to cart roads. The railway has been extended recently from Pegu to Okka in the Hanthawaddy district, through a paddy-producing area between the Pegu and Sittang rivers which is at present practically roadless ; and a short branch railway is under construction between Nyaunglebin and Madauk, on the Sittang opposite Shwegyin.

The possibility of it becoming necessary to construct a new bridge over the Sittang river at a site some ten miles upstream from the present railway bridge delays work on the main road which will join the Pegu and Tharon districts. But metalling and bridge work are in progress on the portion of this road from Kyaikto to Martaban.

In the Amherst district further metalling and bridge renewals are contemplated on the Moulmein-Amherst road ; and they are in progress on the Myawaddy road. Construction of the trunk road is in progress from terminus of the railway at Ye to the Tavoy district border : and as soon as this is completed, the section from Thanbuzayat to Ye will be constructed. The villages along this recently constructed railway from Moulmein to Ye have been connected to their railway stations by feeder roads.

In Tavoy district the replacement of wooden bridges by permanent structures, and the construction of the remaining portion of the trunk road to meet the Amherst district section are in progress. There is also a proposal to extend the railway through this district south to Mergui, but the alignment has not been settled finally. The trunk road between Tavoy and Mergui traverses an area suitable for rubber plantations, but a number of major bridges remains to be built on it ; and the probability is that it will require realigning in places to enable combined road and railway bridges to be erected.



South of Mergui water transport has to be depended on but improvements are contemplated to the road from Victoria Point to Maliwun, in the interest of local rubber plantations.

Arakan's greatest need is a road across the Yomas to connect it with the Irrawaddy Valley : and it is intended next dry weather to demarcate its alignment joining the existing road systems of Sandoway and Prome districts.

The Sandoway-Gwa road running south along the sea coast is being surfaced and bridged : and on Ramree Island the road which connects Kyaukpyu with the remainder of the island is being opened out and improved.

The inland waters of the Kyaukpyu and Akyab districts are the principal means of communication ; and the most urgent requirement of the Akyab district is reconstruction of the road along the alignment of the defunct Maungdaw-Buthidaung light railway. This project is being prepared.

The road from Thayetmyo westwards to Mindon is being improved : and the trunk road from Rangoon is being extended from Allanmyo through the Magwe district to Meiktila.

The Yenangyaung and Chauk oilfields are being connected by road, with a branch to Kyaukpadaung in the Myingyan district, at the terminus of the railway which is under construction from Taungdwingyi.

At an early date the construction of a branch railway from Taungdwingyi west to the Irrawaddy is contemplated, and this line will be connected to Magwe by road.

Eighty miles of the Main Trunk Road are being bridged and metalled in the Toungoo district : and when this work is near completion, it is intended to construct a main road along the foot hills on the east of the Sittang river from Toungoo to Shwegyin, to serve an area with considerable agricultural potentialities. Eventually this road will be continued on to join the main road in Thaton district.

In the Pyinmana district work is proceeding on the construction of 70 miles of Main Trunk Road.

The Meiktila, Myingyan and Kyaukse districts are comparatively well supplied with surfaced roads, which are now being bridged and metalled. Meiktila is being connected with the Main Trunk Road extension in the Magwe district ; and the trunk road is under construction between Mandalay and Kyaukse. In anticipation of the early construction of the Irrawaddy bridge the road from Mandalay to Amarapura is being continued on to Amarapura shore.

Minbu district requires two large bridges over the Mon and Man rivers ; and when the railway is extended north from the proposed rail-ferry terminus, opposite Patanago in the Magwe district, it is intended to construct combined road and railway bridges across these rivers.

The Pakokku district is handicapped by a lack of suitable material for road surfacing. Until this difficulty is solved, improvements to its roads can progress only slowly. Work is in progress on the main road from Pakokku to Kan.

The Lower Chindwin district roads are being metalled and bridged, but no new construction is in progress there or in the Upper Chindwin district.

The roads in the portion of the Sagaing district south of the Irrawaddy are being improved and connected to the Kyaukse road system ; and the main road from Sagaing is under construction north to Shwebo.

The roads in the irrigated area of the Shwebo district are being gradually metalled and provided with permanent bridges.

Katha district is particularly deficient in roads ; and it depends principally on the railway line which traverses it for 80 miles ; but roads are now under construction from Katha to Naba, Indaw, Banmauk and Mansi : and Wuntho is being connected with the Pinlebu Valley.

The Indaw Valley and the country south of Mogaung in the Myitkyina District are served to a certain extent by unsurfaced cart roads, but the majority of Myitkyina roads are mule tracks. The Bhamo district depends principally on transfrontier trade with China, to which its roads lead, but the lower portion of the Taiping Valley and the Mole Chaung Valley are agricultural. A bridge across the Taiping to connect these areas, and an extension of the main road northwards to connect with the Myitkyina road system appear to be works which should receive consideration.

## APPENDIX II.

Vide question A. I. (ii) and (iii) of the questionnaire.

BRIDGES WITH ONE OR MORE SPANS OF 80 FEET OR OVER.

District.	Existing bridges.	Length in feet.	Bridges required.	Length in feet.
1	2	3	4	5
Insein ..	1. Pazundaung Creek .. 2. Pazundaung Creek (Hlegu). 3. Sadalin .. .. 4. Okkan .. ..	570 375 140 100		
Pegu ..	1 Pegu river ..	300	1. Kawlia (sanctioned).. 2. Yenwe (sanctioned).. 3. Aingdon (under construction). 4. Natlaung (under construction). 5. Sittaung (combined road and pipe line bridge proposed).	180 380 120 140 700
Toungoo ..	1. Sittang .. .. 2. Kabaung .. .. 3. Yeni .. ..	650 500 80	1. Kun (under construction). 2. Pyu (under construction). 3. Swa (under construction).	120 300 260
Yamethin ..	1 Taungnyo .. ..	220	1. Yonbin (under construction). 2. Sinthe (i) (under construction). 3. Sinthe (ii) (under construction). 4. Sinthe (iii) approved)	200 200 200 200
Tharrawaddy	1. Thonze .. .. 2. Bilin .. .. 3. Mokka .. .. 4. Minhla .. .. 5. Gamon .. .. 6. Minbu .. .. 7. Kantha .. ..	260 120 90 100 90 80 220		
Prome ..	1. Wegyi .. ..	112	1. Buyo (sanctioned) ..	200
Thayetmyo..	....	..	1. Bwetgyi (under construction). 2. Kyeni (sanctioned) .. 3. Nyaungbintha (sanctioned). 4. Mindon .. ..	300 200 180 300

District.	Existing bridges.	Length in feet.	Bridges required.	Length in feet.
1	2	3	4	5
Magwe ..	1. Sun .. ..	120	1. Yanbe (sanctioned) 2. Sadon (sanctioned) .. 3. Palin (sanctioned) .. 4. Yin (approved) .. 5. Yin (on Thiyagauk road). 6. Pin (near Yenang- yaung).	180 280 280 600 400 800
Minbu ..	1. Sabwet .. ..	220	1. Mon { combined road 2. Man { and railway 3. Salin { bridges ap- proved.	900 800 1,300
Pakokku ..	1. Shwegyaung (timber)	800	1. Yaw .. .. 2. Saw .. ..	400 200
Myingyan ..	1. Pyaungbya .. 2. Kokke .. ..	240 100	1. Taungtha .. .. 2. Kyaukka .. .. 3. Laya .. .. 4. Wetlaung .. ..	300 200 150 200
Meiktila ..	1. Myitta } timber .. 2. Thelun }	160 100	1. Thinbon .. .. 2. Wundwin (approved) 3. Chaunggauk .. 4. Pyingyaung (under construction). 5. Payangazu (under construction). 6. Samon (approved) near Kume.	500 200 400 200 100 600
Kyaukse ..	1. Dwehla .. .. 2. Myinzu .. .. 3. Zawgyi .. .. 4. Panlaung .. ..	280 200 100 260	1. Mu .. ..	800
Sagaing ..	.....	..	1. Irrawaddy (combined road and railway bridge sanctioned).	3,600
Mandalay ..	1. Myitnge .. ..	680	1. Mu .. ..	700
Shwebo ..	.....	..	1. Theinlin (under con- struction). 2. Namtabet .. .. 3. Taiping .. .. 4. Salween .. ..	200 150 300 400
Bhamo ..	1. Namsiri .. ..	200	1. Namyin (under con- struction). 2. Indaw .. ..	280 300
Myitkyina ..	.....	..	1. Belin (under con- struction). 2. Kadet (under con- struction).	500 180
Thaton ..	1. Thebyu .. ..	200		

District.	Existing bridges.	Length in feet.	Bridges required.	Length in feet.
1	2	3	4	5
Salween ..	.....	..	1. Yunzalin .. ..	600
Amherst ..	.....	..	1. Ye (combined road and railway bridge approved).	420
Tavoy ..	1. Pauktaing .. .. 2. Yewaing .. .. 3. Heinda .. .. 4. Maungmashaung .. 5. Shwegyu .. .. 6. Pawut .. ..	252 280 80 100 180 130	1. Talaingya (under construction). 2. Tavoy River .. 3. Mindet { combined 4. Pe { road and railway bridges proposed. 5. Zinba .. ..	220 500 490 200 200
Mergui ..	.....	..	1. Palauk } combined 2. Pyicha } road and 3. Palaw } railway 4. Milaung } bridges 5. Pino } proposed. 6. Kyaukpya	240 200 450 200 560 750
Akyab ..	.....	..	1. Mingan .. .. 2. Ngawabya .. .. 3. Rathedaung .. 4. Tat .. .. 5. Kanyin .. .. 6. Tangyo .. .. 7. Paungdok .. ..	300 400 300 300 350 400 200
Sandoway ..	.....	..	1. Kindaungyi .. 2. Taungup .. .. 3. Yegauk .. .. 4. Thade .. .. 5. Sandoway .. .. 6. Kyaukkyi (under con- struction). 7. Kyeintali .. .. 8. Satthwa .. .. 9. Salu .. ..	250 250 200 200 500 200 600 600 400
Bassein ..	.....	..	1. Daga (Athok-Bassein road). 2. Daga (Ngathaing- gyaung-Henzada road).	800 800
Henzada ..	.....	..	1. Payin .. .. 2. Mamya .. .. 3. Ngawun .. ..	200 200 800
Hanthawaddy	.....	..	1. Kayan (approved) ..	140
Upper Chind- win.	.....	..	1. Boinu .. .. 2. Chol .. ..	120 80

# APPENDIX III.

Vide question A. I. (vi) of the questionnaire.

## Statement of Expenditure—provincial, Federated Shan States and Local funds.

Year.	Construction.			Maintenance.			Grand Total.
	Provincial and Federated Shan States.			Provincial and Federated Shan States.			
	Metalled.	Unmetalled.	Total.	Metalled.	Unmetalled.	Total.	
1913-14	Rs. 8,89,887	Rs. 5,94,588	Rs. 14,84,475	Rs. 12,76,817	Rs. 9,01,774	Rs. 21,78,591	Rs. 56,26,066
1923-24	18,64,967	12,64,270	31,2,237	23,22,663	20,19,314	43,41,977	92,03,214
1924-25	19,55,147	27,41,208	46,96,355	19,67,982	23,01,897	42,69,879	1,02,66,234
1925-26	25,43,654	29,88,253	55,31,907	25,14,969	24,36,650	49,51,619	1,25,73,526

NOTE.—These figures exclude Establishment and Tools and Plant charges.

APPENDIX III—*contd.*

The mileages of metalled and unmetalled roads maintained are given in the following statement :—

Year.	<i>Mileage.</i>	
	Metalled Miles.	Unmetalled Miles.
1925-26	2,250	9,116

The figures for the earlier years cannot be compared with the 1925-26 figures owing to changes in classification and for other reasons.



(Form referred to at A. I. (vii) of the questionnaire.)

BURMA PROVINCE INCLUDING THE FEDERATED SHAN STATES.

*Detail of expenditure on road maintenance|construction in 1926-27.*

Class.	Mileage to nearest ten.			Provincial expenditure Rs. 1,000's.			Local fund Expenditure Rs. 1,000's.			Total expenditure Rs. 1,000's.	
	Metalled.	Un- metalled.	Total.	Metalled.	Un- metalled.	Total.	Metalled.	Un- metalled.	Total,	Metalled.	Un- metalled.
1	2	3	4	5	6	7	8	9	10	11	12
1. Main roads .	1,890	8,045	9,935	25,02	22,06	47,06	..	..	..		
2. District roads .	330	1,850	2,180	36,54	25,06	61,60	..	..	17,38	(5·00)	(1·50)
				11	2,78	2,89	..	..		(40·00)	(10·00)
				(a)	(a)	(a)	(a)	(a)	(a)		
Total .	2,220	9,895	12,115	..	..	..	..	..	∴	..	..

(a) All Local Fund expenditure is assumed to be on maintenance.

## APPENDIX V.

*Vide question No. B.-7 of the questionnaire.*

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LETTER FROM THE GOVERNMENT OF BURMA, JUDICIAL DEPARTMENT, No. 182-N.|26,  
DATED THE 1ST JULY 1927, TO THE GOVERNMENT OF INDIA, DEPARTMENT OF  
COMMERCE.

With reference to the letter from the Secretary to the Government of Bombay, Finance Department, to your address, No. 4740-A., dated the 16th May 1927, a copy of which was forwarded by the Bombay Government to this Government, on the subject of the proposed imposition of a tax or duty on petrol as a means of taxation of motor vehicles, I am directed to say that His Excellency the Governor in Council agrees with the Government of Bombay that a tax on petrol is the most suitable method of taxing motor vehicles. The local Government is anxious to impose such a tax in Burma, and wishes therefore to support the proposals of the Government of Bombay in principle.

2. The Government of Bombay has pointed out that it will not be possible to introduce such a tax in some provinces in India without imposing it in the others. In the case of Burma, however, the difficulties in respect of smuggling would not arise, and the imposition of such a tax in this province alone would be a simple matter. All motor spirit used in Burma moreover is refined in Burma and pays duty at the refinery, and there should be no difficulty in collecting the additional tax or duty to be credited to the provincial revenues.

3. I am accordingly to request that, should the Government of India decide that the proposal is impracticable for adoption in India as a whole, the suitability of imposing such a tax in Burma alone may be considered.

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## APPENDIX VI.

*Vide question No. C.-1 of the questionnaire.*

*Resolution No. 1177—41-C. C.-1, dated the 21st March 1927, by the Government of Burma, Public Works Department (Communications).*

The following orders regarding the constitution and functions of the Government Communications Board are issued in supersession of the orders issued in Public Works Department Communications, Resolution No. 880—42-C. C. (Genl.), dated the 6th November 1923, as amended by No. 295—41-C. C.-1, Volume II, dated the 28th January 1926 :—

1. *Constitution of the Communications Board.*—The Communications Board will consist of 23 members, of whom 16 will be elected by the non-official members of the Legislative Council according to the principle of proportionate representation by means of the single transferable vote ; five members will be nominated by His Excellency the Governor and the remaining two members will be the Hon'ble Finance Member and the Hon'ble Forest Minister. Persons other than members of the Legislative Council will be eligible for nomination and election equally with members of the Council. The Hon'ble Finance Member will be the Chairman of the Board and will have a second or casting vote in the event of an equality of votes on any matter before the Board. Members elected by the Legislative Council will hold office until such time as the Council is dissolved. Each vacancy in their number will be filled by election on the first occasion on which the Council meets after the vacancy occurs. Members nominated by His Excellency the Governor hold office until such time as the Legislative Council is dissolved. Each vacancy in their number will be filled as soon as possible by a fresh nominee. The Secretary of the Board will be the Chief Engineer, Public Works Department, Buildings and Roads Branch, who will not be a member of the Board. For the purpose of dealing with questions placed before it the Board will be divided into two Committees which will deal respectively with Roads and Waterways. Each Committee will consist of 12 members including the Chairman ; of these eight will be selected by His Excellency the Governor from among the elected members of the Board. The Hon'ble Forest Minister will be Chairman of the Roads Committee and the Hon'ble Finance Member will be Chairman of the Waterways Committee. The Chief Engineer, Public Works Department, Buildings and Roads Branch, will act as Secretary to the Roads Committee, and the Chief Engineer, Public Works Department, Irrigation Branch, will act as Secretary to the Waterways Committee. The Chairman of each Committee will have a second or casting vote in the event of an equality of votes on any matter before the Committee. The Roads Committee will meet monthly, if there is sufficient business to be disposed of, at 4-30 P.M. on the Thursday following the first Monday in each month. The Waterways Committee will be summoned as often as there is business to be placed before it. Meetings of the Board as a whole will be convened to consider such matters as in the opinion of the local Government are of sufficient importance to place before it. The presence of at least six members shall be necessary to constitute a quorum.

2. *Functions of the Communications Board.*—The functions of the Communications Board will be to assist Government in shaping its policy for the development of communications, to scrutinise or initiate projects in pursuance of

that policy, and to accord financial sanction under the power conferred on it by the Finance Department under Devolution Rule 45 to all Major projects approved by it. This power is subject to the proviso that the decision of the Board is concurred in by the Finance Member. The sanction accorded by the Board will be for a specified amount in the case of each project. The list of new works which it is proposed to include in the Provincial Estimates of the following year will be referred to the Board for approval.

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# Replies to the questionnaire submitted by the Government of Bihar and Orissa.

## A.—ROAD DEVELOPMENT.

1. (i)

Provincial.		District Boards.		Total Surfaced.	Total Unsurfaced.	Grand Total.
Surfaced.	Unsurfaced.	Surfaced.	Unsurfaced.			
1,339	237	2,416	25,338	3,755	25,575	29,330

The table includes 67 and 45 miles of surfaced and unsurfaced provincial roads in the Feudatory States maintained by the Public Works Department.

1. (ii) and (iii) Please see Appendices I and II.

1. (iv) The Government of Bihar and Orissa in the Public Works Department is responsible for the "Provincial" roads and the District Boards of each district for the "District Board" roads which include the local board and union board roads. The District Boards are under the administrative control of the Local Self-Government Department of Government.

1. (v) *Provincial roads*.—The provincial roads are constructed and maintained by the Public Works Department of the local Government from provincial revenues.

Contributions are received by Government from certain Feudatory States for the maintenance of portions of provincial roads which pass through their territories. In certain cases, however, the States concerned do not pay any contribution. The details are given under:—

- (i) Athgarh State pays a contribution of Rs. 1,000 a year for the maintenance of 10 miles of the Cuttack-Angul road which passes through that State. The rate of payment is Rs. 100 a mile.
- (ii) Dhenkanal State pays Rs. 9,125 as the annual contribution for the maintenance of about 37 miles of the same road passing through its territory. The rate of payment is Rs. 250 a mile.

- (iii) A portion of the Cuttack-Sambalpur road, 25 miles in length, passes through Athmallik State for the maintenance of which the State pays a contribution of Rs. 1,300 annually, *i.e.*, at the rate of Rs. 50 a mile.
- (iv) Certain portions of the Ranchi-Chaibassa, Harbhanga-Phulbani and Cuttack-Sonepur roads, the total length of which is 40 miles, also pass through Feudatory States, but for the maintenance of these the States concerned do not pay any contribution.

All funds for the provincial roads are arranged and financed by the Government and provided in the budget for the year.

*District Board roads.*—The entire expenditure incurred on the construction and maintenance of all types of roads, whether lying within the jurisdiction of a local board or a union committee, is met out of the district fund constituted in accordance with section 52 of the Local Self-Government Act, 1885. No separate accounts are kept by District Boards of expenditure incurred out of the receipts derived from each one of the sources enumerated in section 52 and therefore it is not possible to ascertain to what extent road expenditure is debited to the income derived from each of these sources. For practical purposes it may be taken that roads are financed from road cess.

The local Government makes an annual recurring grant known as the augmentation grant amounting to Rs. 2,80,000 to 3 lakhs, to District Boards for roads and bridges. Special grants to a few boards are also given from year to year for improvement of communications. The amount of these grants varies from year to year.

1. (vi)

Year.	Surfaced.	Unsurfaced.	Total.	Expenditure.	Remarks.
				Rs.	
1913-14	2,599½	23,644½	26,244	40,74,284	
1923-24	3,528	24,449	27,977	66,30,055	
1924-25	3,614	24,612	28,226	55,05,929	
1926-27	3,697	24,814	28,511	56,09,270	

1. (vii) Please see Appendix III.

2.

	Surfaced.	Unsurfaced.
(a)	4.4 miles.	30.7 miles.
(b)	10.8 miles.	75.0 miles.
(c)	11.3 miles.	78.3 miles.

The area and population of the Feudatory States and 67 and 45 miles respectively of surfaced and unsurfaced provincial roads passing through these States have not been taken into consideration in calculating the figures arrived at.

(NOTE.—Area of British territory . . . . . 83,161 sq. miles.  
 Area of Feudatory States . . . . . 28,648 sq. miles.  
 Total population in British territory . . . . . 34,002,189.  
 Total rural population in British territory . . . . . 32,627,424.  
 Total population in Feudatory States . . . . . 3,959,669.  
 Total rural population in Feudatory States . . . . . 3,924,364.  
 The area and population figures taken from Census of India, 1921.)

3. (a) (i) The total expenditure on roads from provincial revenue bears a ratio of 2·4 per cent. to the total provincial revenue.

(a) (ii) The total expenditure on roads from local funds bears a ratio of 28 per cent. to the total local funds revenue.

of (b) (i) The incidence per head of *total population* of all road expenditure from provincial revenues is 7·6 *pies*.

(b) (ii) The incidence per head of *rural population* of all road expenditure from provincial revenues is 7·9 *pies*.

(b) (iii) The incidence per head of *rural population* of all road expenditure from local funds is 2 *annas* only.

In working out the figures for (b) (i) and (b) (ii) the population of the Feudatory States within the province has not been taken into account as the local Government does not incur any expenditure from provincial revenues on roads in these States beyond what is spent in the maintenance of 67 and 45 miles, respectively, of surfaced and unsurfaced provincial roads passing through them and in making grants-in-aid to the Chiefs for construction of such roads and bridges within their States as are considered to be of provincial importance.

In working out the figure for (b) (iii) the population of the Feudatory States has been excluded as there are no roads belonging to any public authorities within these States.

(NOTE.—For area and population see answer to question A-2.)

4. No road traffic statistics are maintained in the province. They are only taken in very exceptional cases such as where there is a question of traffic over a weak bridge or over a road the narrowness of which is under investigation.

For the general provincial roads, no system of such statistics is desirable. For purposes of testing roads and road surfaces, figures for traffic in some of the busy bazar portions give all that is required.

5. (a) The chief road agencies in this province are (1) the Public Works Department who maintain provincial roads and the (2) District Boards who maintain other roads.



So far as co-ordination within the province goes, the area under investigation is conveniently divided into three main divisions, A, B and C.

A. The area lying to the north of the Ganges. The roads here are entirely maintained by the District Boards of Saran, Champaran, Muzaffarpur, Darbhanga, Monghyr, Bhagalpur and Purnea. The roads of more than local importance are--

- (1) The road leading from Bettiah through Motihari, Muzaffarpur and Samastipur to the Ganges river opposite Monghyr.
- (2) The road leading from Hajipur to Chapra and from Hajipur through Muzaffarpur to Darbhanga.
- (3) The road leading from Karagola ghat through Purnea to Kissengunj and so on to Siliguri in the Jalpaiguri district in the province of Bengal.

With the exception of the last named road, all these roads are controlled by more than one District Board and the condition of the road varies considerably. It is advisable that these roads which are of more than local importance should be placed under one controlling authority.

Owing to physical reasons, namely, the vagaries of rivers debouching from Nepal, it is not considered feasible to have an all-weather road in that part of the country lying to the east of Darbhanga and west of Purnea.

B. The area now under consideration is that comprising Patna, Gaya, Monghyr, Bhagalpur, Sonthal Parganas, Hazaribagh, Manbhum, Ranchi, Chaibassa, Palamau and Shahabad districts, that is to say, tracts south of the Ganges extending to latitude  $22\frac{1}{2}^{\circ}$ . Apart from the Grand Trunk Road running from north-west to south-east from Mohania through Dehri and Bagodar to Chirkunda which can be correctly classed as an all-India road, the main centres of road traffic are Gaya, Hazaribagh and Ranchi. Daltonganj is likely to come into importance in the near future.

Patna is cut off from the north by the Ganges river. The recently constructed combined road and railway bridge across the Son at Koilwar will connect up Patna with Arrah and afford an exit to the west and to the Grand Trunk Road through Sasseram as soon as the present *kuchha* track between Patna and the Son river is put into order. At present 6 miles of this road are 12' under water at times of abnormal flood—in most years it is 5' to 6' under water. The direct route from Patna to Gaya *via* Jehanabad is impassable on account of floods in the Poonpoo.

Road communication between Patna and Monghyr is considerably restricted on account of the Mokamah Tal between Mokamah and Laheriasarai which is frequently under water. There is all the year round communication between Patna and Gaya *via* Patna, Bihar and Nawadah, but a portion of this road is *kuchha* and is extremely difficult

for motor traffic during the rains. Inter-district communication between Patna and Monghyr can best be carried out by a spur from the Patna-Gaya road joining up Nawadah to Sikandara, Jamui, Monghyr, Bhagalpur and then south-east to Dumka. Nawadah appears to be the most important road junction in the future as if the District Board road between Nawadah and Rajauli is extended to Kodarma to join the District Board road of Hazaribagh district, the journey from Patna (the winter seat of Government) to Ranchi (the summer headquarters of Government) would be considerably shortened.

Several important roads radiate from Hazaribagh. The Public Works Department road between Hazaribagh and Giridih is bridged and metalled throughout but it stops at Giridih. An extension is required between Giridih and Chakai with branches from Chakai to Jamui and another to Jasidih to connect up Ranchi, Hazaribagh and Manbhum with Monghyr, Bhagalpur and Naya Dumka.

Daltonganj situated on the western boundary is connected by a partially metalled and partially gravelled but fully bridged road with Ranchi. It has communication with Gaya by means of the District Board road which is not in good order. The inter-district road communication between Daltonganj and Gaya will be of considerable use.

C. The area under consideration is from Ranchi in Chota Nagpur to the Orissa coast and as well as the area stretching from Ranchi south to the Central Provinces boundary.

Ranchi is an important centre in respect of road communication with Orissa and Sambalpur. Owing to several large rivers debouching into Orissa it is necessary to have two main roads leading from Ranchi to the south and south-west. The more eastern road passes through Chaibassa and Jaintgarh up to Jajpur Road station where it joins the Orissa Trunk Road. The Orissa Trunk Road, north of Jajpur, is motorable throughout the year up to Balasore and when the bridge under construction at Balasore is completed, say by September 1928, it will be possible to have all-the-year-round communication up to the Subarna-rekha river and Jellasore, the eastern boundary of the province. Road communication west of Jajpur in the direction of Cuttack is practically impossible owing to the existence of the Brahmani river which is not only not fordable itself, but floods many miles of the approach road laterally.

The western route from Ranchi to Orissa is through Lobardaga, Gumla, Kalebira, Sundargarh, Jharsuguda, Sambalpur, Angul and Cuttack. At present this route is not feasible except between December and June. It is a very important line as it also affords direct communication from Sambalpur to Raipur in the Central Provinces and through Angul, Harbhanga, Phulbani, communication with Berhampur and Ganjam in the Madras Presidency. As will be seen from the map,\* parts of these roads are District Board roads, parts are maintained by the Feudatory States and parts by the Public Works Department. It is advisable that this road which is more than of local interest should be entirely under the control of one authority, preferably the Public Works Department.

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\* Not printed.

5. (b) The all-India roads connecting with other provinces are as follows :—

- (1) The Grand Trunk Road from Mohania to Chirkunda turning north-west to south-east. This road, the length of which within Bihar and Orissa is 240 miles, connects up Benares on the west and Calcutta on the east. The Son river at Dehri is unbridged which causes considerable interference with through motor traffic. There is a causeway at Dobhi which occasionally holds up traffic during the rains. There are three weak bridges along this road which may take  $1\frac{1}{2}$  ton motor lorries but nothing more.

As stated in paragraph 5 (a) C above, the road from Sambalpur through Bargarh connects up with Raipur in the Central Provinces and thence to Bombay. The road north-west of Sambalpur leading to Ranchi is neither bridged nor metalled up to Gumla and owing to the small amount that the local Government has been able to allot for the improvement of road communications, the improvement of this road is being taken up piecemeal as funds permit.

Phulbani in Angul district connects up through Russelkonda with Berhampur (Ganjam) in the Madras Presidency. The road between Phulbani and Angul is only gravelled with several small bridges remaining to be put in, as well as a boat ferry across the Mahanadi at Tikarpara.

- (2) The eastern end of the Orissa Trunk Road connects with Midnapur in the province of Bengal, but the road communications from Midnapur to Calcutta, owing to the presence of several large unbridged rivers, is hardly within the range of practical politics.

- (3) As has been stated in paragraph 5 (a) above, it is doubtful whether the road from Karagola road through Purnea to Siliguri will be of much use as a through road. If this road were to be developed so as to benefit Bengal it would be necessary to improve the unbridged and gravelled road between Dumka and Ondal on the Grand Trunk Road, Bengal portion. This postulates the bridging of Ajoy and More rivers.

6. Apart from the want of co-ordination by District Boards in developing inter-district communication, as has been pointed out in answer to question 5, District Boards find that owing to the growing demand for funds for education and sanitation they have to seriously curtail the amount available for the maintenance of their existing roads. This postulates and it is also a fact that they have no funds to spend on the development of their road system. Accepted programmes of reclassification will add much towards eradicating the defects of existing systems.

but reclassification without sufficient funds to enable the existing roads to be put into order and for development would be useless.

7. (a) It is practically impossible to determine the rate of development required to keep pace with the growing needs of motor transport, but experience has shown that no sooner are new roads and bridges thrown open proprietors of companies immediately apply for licences for the carriage of passengers and goods.

(b) As the financial resources of the province and District Boards are very limited, development can only be financed by extra taxation.

(c) It is considered that funds for the construction of bridges may be provided by means of loans because the maintenance cost of such bridges is low. The construction and development of roads presents a totally different aspect as the maintenance charges compared with the cost of construction are relatively large.

8. The development proposed will benefit railways as the roads where they cross railways will serve as feeder roads to such railways. The best means of co-ordinating roads and railways in the interest of transport is to have representatives of the railways running through the province on the proposed Provincial Road Board.

9. (a) The facilities afforded by the Alipore Test House are not utilised to any great extent by this province. It is proposed to establish machinery and plant for testing road metal at the Bihar College of Engineering at Patna.

(b) (i) The province is too poor to experiment with the modern methods of road construction with the exception of tar painting and in some cases tar grouted roads.

(ii) *Nil.*

(c) There are no such arrangements.

(d) It is considered that in the event of assignment being made from central revenues, provision should be made for supplementing, subsidising, co-ordinating and distributing the results of experiment and research.

## B.—MOTOR TRANSPORT AND MOTOR TAXATION.

1. Figures for 1913-14 and subsequent years up to 1923-24 are not now available. (The following figures also, it is regretted, cannot be considered in any way reliable; the question of securing more accurate statistics is already engaging the attention of the local Government. These figures purport to give the totals of cars registered at various times in Bihar and Orissa, some of which must have gone out of commission. On the other hand many cars running in Bihar and Orissa are actually registered on the books of other provinces.) The number of motor vehicles increased in Bihar and Orissa from 2,008 in 1923-24 to 5,318 in 1926-27.

The number of motor vehicles which were registered in Bihar and Orissa during the years 1923-24 to 1926-27 under each of the following classes is as follows :—

Designation of cars.	1923-24.	1924-25.	1925-26.	1926-27.
(a) Private cars . . . . .	401	401	591	605
(b) Motor buses* . . . . .	112	89	123	245
(c) Taxis . . . . .	47	166	244	259
(d) Commercial goods vehicles . . . . .	17	28	25	22
(e) Motor cycles . . . . .	76	90	73	66

\* Statement showing the principal bus services, both urban and rural, plying in Bihar and Orissa is attached (Appendix IV).

2. From the recent developments in passenger lorry services, wherever the roads permit, there would apparently be rapid development if more good roads were provided to link up important and populous centres. About goods traffic it is more difficult to prophesy, and it is doubtful whether the pack bullock and bullock cart would be superseded for many years to come. At present larger merchants congregate with their godowns mainly at railway towns, and agricultural produce comes in by village tracks and *kuchha* roads, radiating from these centres on bullock transport. With an improvement in the main roads the merchants might develop a wider vision and go with transport to collect at a long radius from the railway; but such collection is not generally their present practice, and the men who bring their goods to the railway centres work on too small a scale to purchase or hire motor transport for themselves. However, developments up-country would be likely to be reflected in this province as most merchants on a large scale are connected with branches in the United Provinces and elsewhere.

At present development is hampered, first, by the absence of motorable roads of any kind; secondly, by the fact that *kuchha* roads are only motorable for five or six months of the year; and thirdly, by the breaches in metalled road communication through unbridged rivers.

3. Motor transport is taxed in the following manner in Bihar and Orissa :—

(i) By rules made by the local Government under section 11 of the Indian Motor Vehicles Act, 1914—

(a) An initial registration fee is charged on every motor vehicle at the following rates :—

	Rs.
For an autowheel . . . . .	2
For a motor cycle or scooter . . . . .	5
For a motor car not exceeding 2 tons in weight . . . . .	15
For a motor car exceeding 2 tons in weight . . . . .	32



(b) A fee of Rs. 2 a year is levied on driving licences for drivers of motor vehicles.

(c) Fees are charged annually at the following rates on permits issued on motor vehicles which are let or ply for hire :—

	Rs.
For a motor vehicle with—	
an unladen weight of less than 1 ton . . . . .	50
an unladen weight of 1 and less than 2 tons . . . . .	100
an unladen weight of 2 and less than 3 tons . . . . .	200
an unladen weight of 3 and less than 4 tons . . . . .	300
an unladen weight of 4 tons and over . . . . .	400

These fees are credited to the local Government, but the permit fees (c) have been assigned by the local Government to municipalities in respect of taxis, and to District Boards in respect of motor lorries, which ply upon their roads. The permit fees are the only source of taxation of motor transport which yields an appreciable revenue in Bihar and Orissa, the revenues from this source being approximately Rs. 20,000 a year.

(ii) (a) By section 81 (1) (f) and 137 (2) of the Bihar and Orissa Municipal Act, 1922, the Commissioners of a municipality may, with the sanction of the local Government, impose a tax on vehicles mentioned in the First Schedule to the Act, at rates not in excess of those stated in that Schedule. The kind of vehicles and rates of tax given in the Schedule are as follows :—

	Rs. Per quarter.
For motor car of not less than 25 H.P. . . . .	10
For motor car of less than 25 but not less than 12 H.P. . . . .	6
For motor car of less than 12 H. P. . . . .	4
For motor lorry . . . . .	15
For motor tricycle . . . . .	8
For motor bicycle . . . . .	2
For side car . . . . .	1

(b) By section 326 of the same Act the Commissioners of a municipality may make bye-laws to regulate vehicles plying for hire for the conveyance of passengers within the municipality. Such bye-laws have, under section 354, to be confirmed by the local Government, and the local Government can by the same section rescind bye-laws which it has confirmed. The fees are to be fixed with reference to local conditions ; but vehicles for which fees are paid under these bye-laws are to be exempt from fees under section 137 of the Act.

(iii) No taxation is levied by the District Boards on motor transport. The local Government is contemplating legislation in order to empower District Boards to grant monopolies for the use of motor vehicles plying for hire on particular roads to particular persons or companies, but regards this proposal as outside the scope of the present reference.

4. The proceeds of these taxes are not specially earmarked for expenditure on roads.

5. (a) The Government of Bihar and Orissa is not in a position to say whether the Government of India is prepared to earmark the proceeds of the customs duties on motor vehicles and petrol for expenditure on roads, but they see no reason why this should be done. If the proposed excise duty is imposed on petrol for the benefit of the roads in the provinces and is collected by the Central Government, then it is reasonable that the proceeds of this tax should be earmarked for expenditure on roads. On principle, the earmarking of particular taxes for particular services is a questionable policy, but in the present circumstances of India the local Government is prepared to agree that this particular tax should be devoted solely to expenditure on roads.

(b) and (c) The Government of Bihar and Orissa considers that, if an excise duty is levied on petrol expressly for expenditure on roads, then it is undesirable that the proceeds of provincial and road taxes on motor transport should also be so earmarked. Any sum of money which it is necessary to earmark for expenditure on roads should be obtained through the single method of the excise duty on petrol.

6. The Government of Bihar and Orissa considers that *for this purpose i.e.*, for the purpose of producing revenue for expenditure on roads, the most suitable form of tax would be an excise duty on petrol, and that this should be collected at the same rate throughout India and, therefore, preferably by some central agency. The alternative is to impose a fairly heavy annual registration fee on motor vehicles. If these fees were heavy there would undoubtedly be attempts to evade them. Extra precautions should be necessary to prevent the use of forged certificates and numbers, and much correspondence would be involved with neighbouring provinces. The local Government prefers taxation through an excise duty on petrol. Such a tax could easily be collected through the oil companies, it would be elastic, and its incidence per gallon would be so small that consumers would hardly notice it.

The local Government sees no objection to the existing forms of taxation, provincial and local, explained in answer to question 3. They would leave these in force and, if necessary, increase the rates of fee.

7. The Government of Bihar and Orissa approves of the proposal of the Government of Bombay for an additional duty on petrol, to be distributed between the provinces. They do not approve of distribution according to consumption only, because such an arrangement would handicap the backward provinces, permanently and progressively. They favour distribution according to a formula based on three factors, *viz.*, population, cultivated area and either the mileage of roads or the number of cars.

8. Expert opinion will no doubt be taken on this question, but from a broad general standpoint "weight" would appear in all the circumstances to be the fairest form for all kinds of *annual* taxation; it is also a simple form, and simplicity will facilitate administration by local



authorities. For import duty, on the other hand, being a demand payable once for all, the local Government is inclined to favour an *ad valorem* basis, as more expensive vehicles may be expected generally to have a longer life, apart from any possible standpoint of "luxury".

9. It is possible for the Government of Bihar and Orissa to control the maximum taxation imposed on motor vehicles under the Bihar and Orissa Municipal Act, so far as it is not already controlled by Schedule I, for the reason explained in paragraph (ii) (b) of the reply to question 3. If power of taxation were given to District Boards, the local Government would presumably retain the same power in its case.

The local Government may be trusted to see that local bodies do not encroach unduly upon their own, or the Central Government's proper sphere of taxation. An all-India scale of taxation by local bodies would be unsuitable.

The local Government's own powers under section 11 of the Indian Motor Vehicles Act are not restricted by any maximum. The local Government is not likely to impose fees at a rate greatly in excess of those obtaining elsewhere in India; but it is prepared to agree that maxima should be imposed for the whole of India.

10. Under rule 5 of the rules framed under section 11 of the Motor Vehicles Act, it is not necessary to register again in Bihar and Orissa a motor vehicle in respect of which a subsisting certificate of registration has been granted in any other province in British India under rules framed under section 11 of the Indian Motor Vehicles Act, provided that it conforms to those rules. Again in accordance with the provisions of rule 20, it is not necessary to renew in Bihar and Orissa a subsisting licence to drive a motor vehicle which has been granted in any province in British India under rules framed under section 11 of the Act, provided that it conforms to the Bihar and Orissa rules.

The existing rules of the province, therefore, do contemplate reciprocal exemption of provincial taxation on motor vehicles which have been taxed already in any other province, and do not appear to require amendment.

11. The local Government does not recommend that the proceeds of motor taxation, except the petrol excise duty, should be earmarked for expenditure on roads. No question of a separate fund or account, therefore, arises, except in the case of the petrol excise duty. The local Government considers not only that legislation is required to prevent the proceeds of the petrol excise duty being diverted to other objects by the Legislative Council—if the expenditure thus is made "by or under a law," it becomes, under the present constitution, "non-voted"—but also that, if possible, steps should be taken to prevent the Council, when the proceeds of the petrol excise duty are available, from diverting from roads the funds which they are at present devoting to that service. Provided that legislation is introduced that will ensure that the proceeds of the tax are available for roads only, the local Government sees no necessity for a separate fund.

12. The local Government considers that legislation will be necessary but is not in a position to suggest legislation at this stage of the discussions.

13. (a) The local Government considers that the proceeds of any central taxation that may be imposed should be distributed among the provinces according to a fixed formula. The provincial share should be spent in accordance with the recommendations of the Provincial Road Board, which should submit its programme for criticism to the Central Road Board.

It should not be allocated for specific objects, but should be expended on roads of major importance, *viz.*, on inter-provincial and inter-district roads.

(b) See reply to question 7. The Government of Bihar and Orissa considers that, if distribution be made solely on the basis of consumption or number of motor vehicles, the backward provinces will be unfairly, and progressively, handicapped. Allowance should be made also for population and cultivated area, which likewise are indications of the relative needs of a province.

The local Government prefers a formula based on the following factors:—

(a) population ;

(b) cultivated area ; and

(c) *either* the total mileage of roads *or* the number of cars.

14. The local Government does not consider it practicable to tax other vehicular traffic. Apart from carts, which mostly belong to agriculturists, a tax on other vehicles is not worth consideration. There are both practical and legal difficulties in taxing carts.

15. In Bihar and Orissa generally "local cess" is levied under the Cess Act, 1880, which includes both "road cess" and "public works cess." Local cess is assessed on the annual value of lands and on the annual net profits from mines, quarries, tramways, railways and other improvements ; the rate at which the cess is levied is one anna on each rupee of such annual value and annual net profits, respectively (*vide* section 6 of the Cess Act). The mode of payment of local cess by holders of estates is described in sections 41 and 42 of the Cess Act. The whole of the local cess is now appropriated by the District Boards, and is utilised by them for general purposes, including the maintenance and construction of roads.

### C.—ROAD BOARDS.

1. There is no Road Board in this province. It is contemplated to form one. It is proposed that the function of the board would be to advise the local Government on all matters connected with the road transport. The constitution and functions of the boards in other provinces are being examined. It is thought that for Bihar and Orissa, an advisory road board consisting of Finance Secretary, Secretary, Public Works Department, a representative of the automobile industry,

one representative of District Boards and a representative from the railways will meet the needs of this province.

2. It is considered that a Central Road Board should be formed.

3. As regards its functions, they would include—

- (1) co-ordinating provincial programmes of road development ;
- (2) co-ordinating development of roads and railways ;
- (3) co-ordination and distribution of technical experience and information and research in road construction ; and
- (4) examination of schemes for all-India as well as provincial road development with a view to distributing the revenue from central taxation which is to be allocated to road development.

4. *Nil.*

## APPENDIX I.

(*Vide* question No. A-1 (ii) of the questionnaire.)

1. (ii) The principal bridges existing are shown below :—

### GAYA DISTRICT.

#### *Provincial.*

- (1) Mohana bridge on 269th mile of Grand Trunk Road.
- (2) Gulsakri bridge on 281st mile of Grand Trunk Road.
- (3) Lilajan causeway on 284th mile of Grand Trunk Road.
- (4) Morhar bridges on 291st mile and 292nd mile of the Grand Trunk Road.
- (5) Poonpoon bridge on 330th mile of the Grand Trunk Road.
- (6) Bridge over the Patna Canal.

#### *District Board.*

- (1) Bridge on road from Jehanabad to Bandhuganj Bazar.
- (2) Bridge on road from Jehanabad to Kurtha.
- (3) Three bridges on Patna-Gaya road *via* Jehanabad.
- (4) Two bridges on Gaya-Daudnagar road.
- (5) One bridge on Rafiganj-Gob road.
- (6) Three bridges on road from Nawadah to border of Gaya district (east).
- (7) One bridge on road from Daudnagar to Aurangabad.

## SHAHABAD DISTRICT.

*Provincial.*

- (1) Bridge over Arrah canal on the Grand Trunk Road (338th mile).
- (2) Kudra bridge at the 364th mile of the Grand Trunk Road.
- (3) Suspension bridge over Durgaoti at 375th mile of the Grand Trunk Road.

*District Board.*

- (1) Three bridges on Arrah-Sasseram road.
- (2) Two bridges on Nasriganj-Dumraon road.
- (3) One bridge on Koilwar-Chausa road.

## DISTRICT SONTAL PARGANAS.

*Provincial.*

*Nil.*

*District Board.*

No important bridges.

## PATNA DISTRICT.

*Provincial.*

- (1) Bridge over Dinapur nullah.

*District Board.*

- (1) One bridge over Poonpoon river on Patna-Barh road.
- (2) One bridge over Poonpoon river on Masourhi-Paliganj road.
- (3) One bridge over Poonpoon river on Masourhi-Naubatpur road.
- (4) One bridge over Morhar river on Masourhi-Naubatpur road.
- (5) One bridge over Dhoa river on Bakhtiarpur-Bihar road.

## PURI DISTRICT.

*District Board.*

- (1) Masonry bridge of 10 spans of 20 feet on Hurra river on Bagmari-Bolgarh road.
- (2) Delang masonry bridge of 16 spans of 16 feet over Noona river on Patnaikia-Khurda road.

## CUTTACK DISTRICT.

*District Board.*

- (1) Taldanda canal bridge on 9th mile of Jagatsinghpur-Silloow road.

## BALASORE DISTRICT.

*District Board.*

No important bridges.

*Bridges on provincial roads in Orissa.*

- (1) Causeway paved 1,291 feet long on 39th mile of Orissa Trunk Road.

- (2) Athurnalla masonry bridge of 19 spans on 51st mile of Cuttack-Puri road.

- (3) One masonry bridge of 7 spans on 38th mile of Cuttack-Puri road.

- (4) Bhargovi girder bridge of 7 spans of 50 feet each on 45th mile of Cuttack-Puri road (under construction).

- (5) Barang masonry bridge on 6th mile of Cuttack-Ganjam road.

- (6) Masonry bridge on 44th mile of Cuttack-Ganjam road.

- (7) Salia suspension bridge on 71st mile of Cuttack-Ganjam road.

- (8) Burabalang bridge (under construction).

## SAMBALPUR DISTRICT.

*Provincial.*

- (1) Girder bridge of 30 spans of 30 feet each at 138th mile of Raipur-Sambalpur road.

*Chota Nagpur Division.*

- (1) Girder bridge of 9 spans of 155 feet at 149th mile on Grand Trunk Road.

- (2) Girder bridge of 7 arches of 75 feet at 149th mile on Grand Trunk Road.

- (3) Girder bridge of 5 spans of 100 feet at 250th mile on Grand Trunk Road.

- (4) Girder bridge of 5 spans of 100 feet at 9th mile on Giridih-Dumri road.

- (5) Girder bridge of 12 spans of 60 feet at 31st mile on Ranchi-Hazaribagh road.

- (6) Girder bridge of 3 spans of 100 feet at 36th mile on Ranchi-Purulia road.

- (7) Girder bridge of 6 spans of 100 feet at 49th mile on Purulia-Chaibassa road.

(8) Girder bridge of 8 spans of 150 feet at 16th mile of Rajganj-Telmutcho road.

(9) Girder bridge of 5 spans of 60 feet at 31st mile on Ranchi-Daltongunj road.

(10) Girder bridge of 2 spans of 200 feet at 36th mile on Chaibassa-Jaintgarh road.

(11) Girder bridge of 6 spans of 60 feet at 36th mile on Daltongunj-Garu road (under construction).

(12) Girder bridge of 9 spans of 60 feet at 11th mile on Daltongunj-Garu road (under construction).

#### MUZAFFARPUR DISTRICT.

##### *District Board.*

(1) Pontoon bridge  $29 \times 30$  feet over Bur Gandak at 2nd mile of Sitamarhi road No. 1.

(2) Pontoon bridge  $23 \times 25$  feet over Bur Gandak at 10th mile of Darbhanga road No. 2.

(3) Girder bridge  $2 \times 100$  feet over Lakhandiye at 23rd mile of Darbhanga road No. 2.

(4) S. P. bridge  $9 \times 30$  feet over New Dhar Bagmati at 22nd mile on Darbhanga road No. 2.

(5) S. P. bridge  $9 \times 30$  feet over Singhi Nasi at 23rd mile on Sursand road No. 23.

(6) S. P. bridge  $7 \times 30$  feet over Puranidhar Bagmati at 8th mile of Sisoula road No. 26.

(7) Girder bridge  $3 \times 100$  feet over Puranidhar Bagmati at 11th mile on Sinhara road No. 25.

(8) S. P. bridge  $7 \times 30$  feet over Puranidhar Bagmati at 20th mile on Darbhanga road No. 2.

(9) S. P. bridge  $22 \times 30$  feet over New Dhar Bagmati on 14th mile of Sitamarhi road No. 1.

#### CHAMPARAN DISTRICT.

##### *District Board.*

(*Vide map.\**)

#### SARAN DISTRICT.

##### *District Board.*

(1) I. S. P. bridge  $8 \times 30$  feet at 3rd mile on Chainpur-Chandpur road No. 55-A (over Gandaki river).

(2) 71 feet span masonry abutments and timber roadway on 25th mile of Chapra-Goothni road No. 8.

(3) S. P. bridge of  $10 \times 30$  feet on river Daha at 19th mile of Chapra-Goothni road No. 8.

(4) Masonry bridge over Daha river on 3rd mile (waterway 527 s.ft.) of Kandua-Kochaikot road No. 101.

(5) Jack arch bridge 520 feet span over the Jherahi river on 4th mile of Kusoundhi-Jagdishpur road No. 98-A.

#### DARBHANGA DISTRICT.

##### *District Board.*

(*Vide map\*.*)

#### BHAGALPUR DISTRICT.

##### *District Board.*

(1) One bridge of brick piers, wooden beam and C. I. deck (waterway 220) at 8th mile of road No. 1.

(2) Steel pile bridge (waterway 560) at 33rd mile of road No. 1.

(3) Steel pile bridge (waterway 290) at 4th mile of road No. 2.

(4) Steel pile bridge (waterway 1,410) at 4th mile of road No. 7.

(5) Steel pile bridge (waterway 200) at 2nd mile of road No. 13.

(6) Steel pile bridge (waterway 240) at 24th mile of road No. 21.

#### MONGHYR DISTRICT.

##### *District Board.*

(*Vide map\*.*)

#### PURNEA DISTRICT.

##### *District Board.*

No important bridges.

### APPENDIX II.

(*Vide question No. A.-1 (iii) of the questionnaire.*)

1. (iii) The principal bridges required are shown below :—

#### GAYA DISTRICT.

##### *Provincial.*

(1) A road bridge to replace the existing causeway over the Lilajan at Dobhi.



*District Board.*

- (1) Two bridges on the road from Rajauli to Fatehpur.
- (2) One bridge on the road from Fatehpur to Gaya.
- (3) One bridge on the road from Gaya to Daudnagar.

## SHAHABAD DISTRICT.

*Provincial.*

- (1) The bridge over the Durgauti river on mile 375 of the Grand Trunk Road is not suitable for heavy traffic. Requires reconstruction.
- (2) A bridge over the Son river at Dehri on the Grand Trunk Road.

*District Board.*

- (1) Two bridges over the Durgauti river near Ramgarh for a direct route from Bhabua to Buxar.
- (2) One bridge over the Karamnasa river near Chausa to join up with the United Provinces.

## DISTRICT, SONTAL PARGANAS.

*Provincial.*

*Nil.*

*District Board.*

- (1) One bridge over the river Ajoy on 40th mile of Dumka-Jamtara road *via* Fatehpur.
- (2) One bridge over the river Ajoy on the 29th mile of Dumka-Madhupur road.

## PATNA DISTRICT.

*Provincial.*

*Nil.*

*District Board.*

- (1) One bridge over Poonpoon river on Patna-Nadaul road.
- (2) One bridge over Poonpoon river on Ranitalao-Kinjer road.

## DISTRICTS IN ORISSA DIVISION.

*Provincial.*

(1) One bridge over Mahanadi river on 2nd mile of Orissa Trunk road opposite Cuttack.

(2) One bridge over the Brahmani river on the 32nd mile of Orissa Trunk road.

(3) One bridge over the Kharsua river on the 38th mile of the Orissa Trunk road.

\*(4) One bridge over the Baitarani river on the 46th mile of the Orissa Trunk road.

\*(5) One bridge over the Subarnarekha river, 27th mile of the Orissa Trunk road north of Balasore.

\*(6) One bridge over the Bhargovi river at Sardeipur on Cuttack-Puri road.

\*(7) Baliana bridge over Khusabhadra river on 1st mile of the Cuttack-Puri road.

\*(8) One bridge over Monaguni river on the 41st mile of Cuttack-Ganjam road.

\*(9) One bridge over Khokhai river on 3rd mile of Cuttack-Ganjam road.

\*(10) One bridge over Katjuri river at Cuttack on 3rd mile of Cuttack-Puri road.

*Puri District Board.*

(1) One bridge over Daya river on 14th mile of Patnaikia-Khurda road.

(2) One bridge over Daya river on the 1st mile of Sardeipur-Chandka road.

(3) One bridge over Bhargovi river on 2nd mile of Pipli-Astrang road.

*Cuttack District Board.*

(1) One bridge over Gobri on Kendrapara-Jajpur road.

(2) Bridges over Mahanadi, Brahmani, Kharsua and Gunja river on Cuttack-Chandbally road. (The cost of these bridges will be very great, the river being broad.)

*Balasore District Board.*

(1) One masonry causeway, 200 ft. long, on the 2nd mile of Basta feeder road.

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\* N.B.—All these bridges, with the exception of Nos. (6) and (7), are very long and will be expensive.

(2) One masonry causeway, 600 ft. long, at 11th mile 1st furlong of the Balasore-Basudevpur road.

(3) One masonry causeway, 300 ft. long, to the west of the Dumra Khal bridge.

(4) One causeway, 400 ft. long, at the 19th mile of Bhadrak-Chandbally road.

(5) Reconstruction of a masonry causeway, 400 ft. long, on the 30th mile 1st quarter of the Bhadrak-Chandbally road.

#### SAMBALPUR DISTRICT.

##### *Provincial.*

(1) One bridge over Bonum river on the Jharsuguda-Sambalpur new road.

#### CHOTA NAGPUR DIVISION.

##### *Provincial.*

(1) One bridge over Damodar river on the Barakar-Purulia road to connect Purulia with the Grand Trunk Road.

(2) One bridge on Dhanbad-Hazaribagh road at Manbhum and Hazaribagh border to connect up collieries on either side of Jamunia river.

##### *District Boards.*

(1) One bridge over Subarnarekha river on Purulia-Jamshedpur road to connect Jamshedpur with colliery district.

(2) One bridge over Barakar river on Manbhum and Sonthal Parganas border on the Gobindpur-Giridih road to link up Dhanbad and Giridih by a direct route.

(3) One bridge on Gobindpur-Giridih road to link up Dhanbad with Giridih.

(4) One bridge over Jamunia river on the 2nd mile of Dumri-Nawadih road to connect Bermo Collieries with Giridih.

(5) One bridge on Latehar-Sarjoo Ghat road to link up Latehar with the new station across the Auranga river.

#### MUZAFFARPUR DISTRICT.

##### *District Board.*

(1) One bridge at Hajipur over the river Gandak to connect Saran district with the Muzaffarpur district and to afford facility to the vast traffic during the Sonapur fair.

(2) One bridge at Bajighat on 5th mile of Bajighat road No. 21, the feeder road to Dholi railway station.

## SARAN DISTRICT.

*District Board.*

- (1) One bridge at Chainpur on the 18th mile of Siwan-Siswan road No. 71.

## DARBHANGA DISTRICT.

*District Board.*

(*Vide map.\**)

## BHAGALPUR DISTRICT.

*District Board.*

- (1) One bridge (waterway 466) on the 10th mile of road No. 1 (causeway exists).
- (2) One bridge over Ghogha nulla (waterway 500) on 11th mile of road No. 3.
- (3) One bridge over Tirmohan nulla on 16th mile of road No. 3 (waterway 470).
- (4) One bridge over Koa nulla (waterway 900) on the 19th mile of road No. 3.
- (5) One bridge over Mahmuda river on 6th mile of road No. 4 (waterway 600).
- (6) One bridge over Andhri river (waterway 800) on 10th mile of road No. 4.
- (7) One bridge over Urni river on 26th mile of road No. 4 (waterway 1,250).
- (8) One bridge over Urni river (waterway 1,200) on 1st mile of road No. 9.
- (9) One bridge over Barua river on the 23rd mile of road No. 9 (waterway 1,300).
- (10) One bridge over Kurar river (waterway 1,050) on 10th mile of road No. 10.
- (11) One bridge over Chandan river (waterway 800) on the 21st mile of road No. 10.
- (12) One bridge over Chandan river (waterway 2,000) on the 15th mile of road No. 12.
- (13) One bridge over Bilasi Nadi (waterway 400) on the 21st mile of road No. 12.
- (14) One bridge over Barua river (waterway 500) on the 33rd mile of road No. 12.
- (15) One bridge at Gap near Canaul (waterway 500) on 1st mile of road No. 14.

(16) One bridge over Darbashan river (waterway 800) on 1st mile of road No. B-7.

(17) One bridge over Chandan river (waterway 1,000) on 10th mile of road No. B-7.

#### MONGHYR DISTRICT.

*District Board.*

(*Vide map.\**)

#### PURNEA DISTRICT.

*District Board.*

(1) One bridge over Mahananda river on the 51st mile of the Ganges-Darjeeling road.

(2) One bridge at Kushaha Ghat on the 19th mile of road No. 1, section 1.

(3) One bridge over the Kosi river at 18th mile of road No. 11.

(4) One bridge over Panar river on the 1st mile of road No. 36.

(5) One bridge over Bokra river on the 9th mile of road No. 36.

#### CHAMPARAN DISTRICT.

*District Board.*

(*Vide map.\**)

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\* Not printed.

APPENDIX III.

Form referred to at A-1(vii) of the questionnaire.

BIHAR AND ORISSA PROVINCE.

Detail of expenditure on road maintenance in 1926-27.  
construction

Class.	Mileage to nearest ten.			Provincial expenditure Rs. 1,000's.			Local fund expenditure Rs. 1,000's.			Total expenditure Rs. 1,000's.	
	Surfaced. 2	Un- surfaced. 3	Total. 4	Surfaced. 5	Un- surfaced. 6	Total. 7	Surfaced. 8	Un- surfaced. 9	Total. 10	Surfaced. 11	Un- surfaced. 12
1. Provincial . . . . .	1,340	240	1,580	{ 751	113	864	...	...	...	...	...
				{ 250	47	297	...	...	...	...	...
2. District Board . . . . .	2,410	25,340	27,750	{ ...	...	...	1,402	1,421	2,823	...	...
				{ ...	...	...	262	1,065	1,327	...	...
3. Total . . . . .	3,750	25,580	29,330	{ 751	113	864	1,402	1,421	2,823	2,153	1,534
				{ 250	47	297	262	1,065	1,327	(570) 512 (9,500)	(60) 1,112 (400)

## APPENDIX IV.

(*Vide* question B-1 of the questionnaire).

Principal bus services, both urban and rural, plying in Bihar and Orissa.

## SHAHABAD.

1. Mohania-Chainpur road.
2. Piru-Bihia road.
3. Buxar-Nasrigunj road.
4. Arrah railway station-Sinha road.

## MUZAFFARPUR.

5. Muzaffarpur-Sitamarhi road.
6. Muzaffarpur-Kanti road.
7. Muzaffarpur-Keotsa road.
8. Muzaffarpur-Rewaghat road.
9. Muzaffarpur-Paru road.
10. Muzaffarpur-Sahebganj road.
11. Sheohar-Sitamarhi road.
12. Hajipur-Lalganj road.

## BHAGALPUR.

13. Bhagalpur-Banka road.
14. Bhagalpur-Panjwara road.
15. Bhagalpur-Bausi road.

## DUMKA.

16. Dumka-Rampurhat-Jasidih road.
17. Dumka-Suri road.
18. Dumka-Godda road.
19. Dumka-Bhagalpur road.
20. Dumka-Amrapara road.
21. Deoghar-Sarath Mohanpur road.
22. Pakur-Hiranpur road.
23. Barhait-Barhawa road.



## MONGHYR.

- 24. Khenka Motor Co.
  - 25. Hitchcock Motor Service.
  - 26. Dixon Motor Service.
  - 27. Khulsa Motor Co.
- } All plying in rural areas.

## RANCHI.

- 28. Ranchi-Chakradharpur road.
- 29. Ranchi-Hazaribagh road.
- 30. Ranchi-Kanke road.
- 31. Lohardaga-Kolebira road.
- 32. Lohardaga-Gumla road.
- 33. Lohardaga-Daltonganj road.
- 34. Ranchi-Kuru road.
- 35. Ranchi-Mirhu road.
- 36. Ranchi-Bundu road.
- 37. Simdega-Birmutrapur road.

## PALAMAU.

- 38. Garhwa-Untari road.

## SINGHBHUM.

- 39. Chaibassa-Chakradharpur road.

## MANBHUM.

- 40. Purulia-Hura-Manbazar road.
- 41. Purulia-Begunkudar-Jhalda road.
- 42. Purulia-Chas-Dhanbad road.
- 43. Purulia-Mamurkidar-Chas road.
- 44. Purulia-Kashipur-Adra-Raghunathpur road.
- 45. Purulia-Raghunathpur-Santuri road.
- 46. Jhalda-Bagmundi-Balarampur-Purulia road.
- 47. Purulia-Dubra-Chellyama road.
- 48. Purulia-Kenda-Manbazar road.
- 49. Purulia-Barabazar-Balarampur road.
- 50. Purulia-Balarampur-Chandil road.
- 51. Purulia-Dubra-Raghunathpur-Dishergurghat road.

## DHANBAD.

- 52. Dhanbad-Jharia-Pathardih road.
- 53. Dhanbad-Kenduadih-Katras-Rajganj road.
- 54. Baliapur-Jharia-Kenduadih-Katras road.
- 55. Dhanbad-Gobindapur-Nirsa-Chirkunda road.
- 56. Dhanbad-Garudpur-Tundi road.
- 57. Purulia-Dhanbad road.

## HAZARIBAGH.

- 58. Hazaribagh-Hazaribagh Road station.
- 59. Hazaribagh-Kodarma railway station.
- 60. Hazaribagh-Chatra road.
- 61. Hazaribagh-Gola road.
- 62. Hazaribagh-Chutupalu road.
- 63. Hazaribagh-Giridih road.
- 64. Chutupalu-Bara Chetti road.
- 65. Giridih-Kodarma railway station road.
- 66. Giridih-Kharagdiha road.
- 67. Bermo-Giridih road.
- 68. Isri-Barachati road.

## PURI.

- 69. Puri-Jatni road.

# Replies to the questionnaire submitted by the Government of the Central Provinces.

## A.—ROAD DEVELOPMENT.

1. The map\* is placed below :—

(i)

	Surfaced. Miles.	Unsurfaced Miles.
(a) Provincial Roads under Public Works Department . . . . .	3,320	1,630
(b) Provincial roads maintained by District Councils . . . . .	1,050	870
(c) District Council roads . . . . .	300	1,270
Total . . . . .	4,670	3,770 =8,440

NOTE.—Only the mileage of professionally aligned roads is given. Besides these there are many thousands of miles of village roads in charge of District Councils concerning which detailed information is not available as no definite funds are allotted by District Councils for their upkeep. These roads, however, are in theory maintained in a more or less passable condition by the village servants in the ordinary course of their duties.

(ii) See Statement 1 at Appendix.

(iii) See Statement 2 at Appendix.

(iv) There are only two road authorities in this province (as far as this questionnaire is concerned), *viz.*, the Public Works Department and the District Councils. Both these authorities may be said to be responsible for all classes of roads in that many roads which are of purely district importance are under the Public Works Department and a few arterial roads of provincial importance are under the District Councils. (The classification of roads, *vide* note (a) of the questionnaire, appears however to depend on the authority in charge of the road. The word "class" in this question is not clear.)

(v) Public Works Department roads are maintained and constructed from the general revenues of the province.

District Council roads are similarly maintained and constructed from the general District Council revenues. In neither case is any particular form of revenue earmarked for road construction nor are any roads maintained or constructed from loans or otherwise than from revenue. The first charge on the revenue available for expenditure on communications is for maintenance, the balance is available for works in progress and new works.

(vi) See Statement 3 at Appendix.

(vii) See Statement 4 at Appendix.

2. *Vide* Statement 5 at Appendix.

(a) (i) 4.68 (ii) 3.8

(b) (i) 3.4 (ii) 2.7

(c) (i) 3.7 (ii) 3.0

3. *Vide* Statement 6 at Appendix.

(a) (i) 7.42 per cent.

(ii) 5.80 per cent.

(b) (i) 5.27 annas.

(ii) 5.82 annas.

(iii) 0.53 anna.

4. None. Road traffic statistics are not in general considered necessary in the present stage of road development of this province. Traffic statistics are sometimes collected when considering the desirability of a new bridge project.

5. (a) Co-ordination within the province is achieved automatically as far as provincial arterial and, in fact, all roads under the Public Works Department are concerned, because the roads are under one authority. The District Council roads are for the most part unimportant but even where these roads are concerned there is co-ordination with the general road system because road schemes are drawn out for each district periodically by a local conference of officials and non-officials acting in an advisory capacity and District Councils are strongly represented at these conferences. These district road schemes are then considered at a second conference of officials and non-officials (at which District Councils are again strongly represented) and grouped into divisional road schemes, all the districts in one Commissioner's division being placed in one group. Thus the names of works which should be undertaken, their order of priority in each Commissioner's division, etc., etc., are fixed. Co-ordination throughout the province is achieved by a yearly conference of Commissioners at the time of the framing of the preliminary Public Works Department budget.

(b) There is no regular machinery for co-ordination of the road scheme of this province with those of neighbouring provinces and States. Such co-ordination as exists is achieved by correspondence between the local Government and the Government of the province or State concerned.

6. The most immediately apparent defect in this province is the absence of bridges at several difficult river crossings on nearly all the main arterial roads. The absence of these bridges hampers traffic of all kinds considerably for quite 7 or 8 months of the year.

Practically all the surfaced roads are of water-bound macadam. This surfacing will not stand up to heavy motor traffic, especially lorry traffic, nevertheless the immediate need of this province, even with special reference to the needs of motor transport, is for more roads of the

existing type or specification rather than for a re-classification or improvement of type of existing road. Road metal of a good kind is available in abundance at short leads practically everywhere and the cost of renewal of water-bound macadam is relatively low, so that until the need for heavy lorry traffic as distinguished from light lorries and taxis, etc., becomes apparent or until the present light lorry and taxi traffic increases very considerably the question of improved surfacing is not in general so pressing as it may be in other provinces. In large towns and in certain localities, modern surfacing is however required to some extent. It should be noted also that the cost of tar, bitumen or concrete surfacing is comparatively greater here than it is where metal is less readily available so that we can resurface a water-bound macadam road several times for the same money as would provide one coat of modern tar or bitumen or other surfacing.

There is no accepted programme of reclassification in this province and lack of funds prevents road development on any appreciable scale. The total expenditure on new road works of all kinds averages over 12 lakhs a year: but this is insufficient to develop roads to an extent compatible with modern requirements and hence some additional source from which funds can be obtained must be found.

7. (a) As stated already the immediate need in this province is for more bridges and more roads of the existing type. Only in a few *quasi*-industrial areas where motor transport is heavy will modern road surfacing be required. The local Government considers that in this province where the railways are working considerably below their full capacity there is no necessity to encourage heavy lorry traffic in rural areas with its concomitant expense to the community.

The local Government considers therefore that the nature and rate of development of the road system desirable in this province is in general just that which will keep pace with light lorry and taxi traffic requirements except in certain industrial centres and in the case of some railway feeder roads where the improvement of the road surface might be specially dealt with.

(b) and (c) Government considers that new development of roads and communications should, as far as possible, be financed from loans provided extra taxation is imposed for the service of such loans. It would perhaps be practicable to meet in the initial stages out of general revenues the maintenance charges not only on the existing roads but also on the new roads to be constructed out of loan funds because the construction of roads by means of loans would in time relieve general revenues of the necessity of constructing new roads but when the recurring charges increase more than proportionately to the normal growth of revenue it might be necessary to defray a portion of the maintenance charges out of funds raised by extra taxation.

The local Government favours the levy of tolls on important bridges on provincial roads, the proceeds being used to further the development of roads.

8. *Vide* the reply to question 7 (a). The roads in this province will only carry light motor traffic and hence cannot be regarded as serious

competitors with the railways. On the other hand the increase in road mileage is almost sure to lead to increased traffic on railways.

No machinery exists for co-ordinating road and railway development except that the local (the Central Provinces) Board of Communications has been constituted to advise Government on both railway and road development and all new rail and road projects will be considered by that Board. If in the future greater co-ordination should appear desirable it might be possible to arrange that proposals for important new roads should be considered jointly by the Railway Board and the local Government. The local Government would however reserve to itself the right to undertake a road project however much it may be considered to affect adversely the railway projects in the same area, should it be considered essential in the interests of the province to do so. There is however room for very great road development before roads and railways can even begin to compete to any appreciable extent.

9. (a) The only direct use made by this province of the Government Test House, Alipore, is for testing road metal from quarries from time to time in recent years. It is not anticipated that the province will require improved facilities for testing road materials for some time as local material other than road metal is not available and all other materials such as cement, tar, bitumen, etc., can be standardized by the manufacturers, any testing which is required being carried out at the instance of the all-India or Central Road Board.

(b) (i) No experimental or research work has been done on modern methods of road construction. The results of experiment and of experience on general road and bridge construction, etc., are recorded in the Public Works Department Specifications which are revised from time to time. Thus, the Central Provinces Roads Specifications have been recently revised and set forth the up-to-date experience of the Public Works Department on road work in this province.

(ii) The effects of different classes of traffic on roads has not been investigated.

(c) No. There are no existing arrangements except that by courtesy papers on technical matters are some times exchanged between the Public Works Departments of the various provinces.

(d) Yes. The local Government considers that provision should be made for all the purposes mentioned. See also the reply to question C-2.

#### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

	1915	1923-24	1924-25	1925-26	1926-27
(a) Private cars . . . . .	129	208	348	318	275
(b) Motor buses . . . . .	2	41	81	161	136
(c) Taxis . . . . .	12	141	401	250	73
(d) Commercial goods vehicles	Nil	4	3	10	13
(e) Motor cycles . . . . .	99	81	69	75	75



From 1st April 1927 to end of September 1927, 311 more vehicles have been registered. Assuming that all the vehicles registered since 1923-24 are still running and that a few registered before that time are also on the road, it may be taken that there are 3,500 motor vehicles of all kinds using the roads in this province at the present time.

The principal bus services are given in Statement No. 7 at Appendix.

2. The province is very far from saturation point. The number of motor vehicles per thousand of population is 0.25 as compared with 166 in America and 83 in New Zealand. Future development will, however, depend very largely on the extent to which increased road facilities are afforded to the public.

3. The information is given in the Statement No. 8 at Appendix. The fees are levied by the registering authority at the time of registration or renewal of the licence under rule 3 (iv) (a) of the Motor Vehicles Rules.

4. The proceeds of all taxation from whatever source are credited to the general revenue and there is no special taxation allocated to expenditure on roads. Out of the proceeds of provincial taxation is met the expenditure in connection with the registration of all motor vehicles and periodical inspections of vehicles plying for hire.

5. This Government agrees generally with the principle that the taxation on motor transport, after defraying the cost of collection of the tax, of registration and inspection of vehicles and of the administration of the Motor Vehicles Act should be devoted to the improvement of roads. It is also prepared to agree that, subject to the deductions mentioned above, the proceeds of the central, provincial and local taxation should be devoted to the all-India, provincial and local, roads respectively. The chief difficulty lies in the separation of functions and the distribution of the proceeds of taxation between the Central and provincial Governments and local authorities, inasmuch as such taxation by one authority encroaches on the fiscal sphere of another. For instance under the Scheduled Taxes Rules framed under Section 80-A 3 (a) of the Government of India Act it is within the competence of the local authorities as well as of the provincial Governments to impose a tax on motor vehicles. These vehicles are also subject to customs duty which is a source of central revenue. It is, therefore, necessary to evolve definite principles as regards the methods of taxation of the various articles by various authorities before it is decided how the proceeds should be spent. The possession of a motor car is generally regarded as an indication of taxable capacity of the owner and if the Central Government utilises this source for raising revenue for general purposes it is difficult to resist the claims of the local bodies to tax owners of motor vehicles for general purposes. Until, therefore, the Central Government decides to earmark the whole of the customs revenue from motor taxation or the excise duty on petrol for road development, it would be difficult to compel local bodies to spend all the money raised by motor taxation on the development of roads within their jurisdiction. Under rule 49 of the Devolution Rules, however, it should be practicable to fix maximum limits of taxation on motor transport by local bodies and provincial Governments.



6. (a) *Central*.—The most suitable forms of central taxation are undoubtedly the customs duty on motor cars and excise duty on petrol as are levied at present but it is not unreasonable for local Governments to expect that the proceeds of this taxation should be spent on the development of roads of all-India importance and also on furtherance of experiment and research with a view to road development in general in India as a whole. If, therefore, a Central Road Board is constituted with a view to the improvement of all-India roads or for the purpose of co-ordinating and distributing the results of research, this Government considers that the expenses on these objects should be met out of the proceeds of customs and excise duties at present in force. Any new duties imposed on petrol should be regarded as a source of provincial revenues pure and simple. For the convenience of administration it may be collected by the Central Government but the whole of the proceeds should be distributed to the provincial Governments which in their turn should make grants to local bodies for the development of the roads, the traffic on which pays this extra duty.

(b) *Provincial*—

- (i) As noted above any new tax on petrol should be regarded as a provincial source of revenue though collected by the Central Government.
- (ii) Tolls on important bridges might be levied for financing the construction of such bridges.
- (iii) Licence fees may continue to be levied as at present for meeting the cost of collection of the tax of registration, inspection and administration of the Motor Vehicles Act.
- (iv) If after the levy of the above fees and excise duty there is still further room for taxation the local Government should be left free and unfettered discretion to impose additional taxation on motor vehicles. Experience alone can show how far this is practicable.

(c) *Local*.—In the opinion of this Government local authorities should not be given power to levy duties on petrol but it would be inexpedient to interfere with their existing power of taxation of motor vehicles subject to the fixation of a suitable maximum sufficiently low so as not to interfere with the powers of taxation by provincial and Central Government.

7. This Government accepts the proposal of the Government of Bombay that a petrol tax should be levied and distributed for the present among the provinces on the basis of consumption. Experience will show whether consumption is a fair basis for a province situated centrally through which a good deal of through traffic must ultimately pass and this Government must reserve the right to raise this issue if the need arises.

8. (a) Import duty *ad valorem* appears to be the fairest means of taxation.

(b) *Registration and other fees*.—If regarded as provincial tax, horse power and weight combined would perhaps give a fair basis of

taxation but for local purposes the vehicular unit seems to be the simplest method.

9. As indicated above it is not only desirable but absolutely essential that maximum limits should be fixed for the imposition of taxation by each authority. The omission to fix such maximum in the Scheduled Taxes Rules has given rise to anomalies and administrative inconvenience which is at present under the consideration of the Government of India and this Government hopes that steps will be taken early to amend the Scheduled Taxes Rules with a view to ensure their smooth working.

10. Reciprocal exemption should be quite feasible for provincial taxation but for local purposes such exemption does not appear to be necessary. The rules in force in this province already provide for such reciprocal exemption so far as other provinces and Indian States which grant similar exemptions are concerned.

11. This Government thinks that the revenue from taxation on motor transport should be credited to a separate fund definitely earmarked for expenditure on roads.

12. This Government considers that it is unnecessary to amend item No. 6 (b) of Part II—Provincial subjects—of Schedule I of Devolution Rules, but it thinks that the object aimed at would be achieved by the framing of rules under Devolution Rule 14 (e) under which the revenue from central taxation such as extra excise duty on petrol might be allocated to the provinces for expenditure on roads.

13. (a) Revenue from any new central taxation should be given to provincial Governments in the form of block grants.

(b) As indicated above the distribution should for the present be on the basis of consumption of petrol. As the power to tax motor vehicles will not be interfered with in the case of municipalities there appears to be no need to grant them any share of the proceeds of the extra taxation on petrol which is a source of central and provincial revenues. The local Government might devise a workable formula for making grants out of the petrol taxation to District Councils for the development of roads within their jurisdiction.

14. The local bodies have power to tax vehicular traffic other than motor transport and there appears to be no objection to their exercising these powers for the development of roads within their jurisdiction but this Government would not advocate local Governments exercising similar powers in the meantime.

15. At present there is no specific road cess in the province. A road cess of 3 per cent. of the land revenue used to be levied prior to 1st May 1922 when the new Local Self-Government Act came into force, and under which a cess at a consolidated rate of  $6\frac{1}{4}$  per cent. is levied for general purposes by District Councils.

#### C.—ROAD BOARDS.

1. (a) Yes.

(b) In December 1927.

(c) A copy of the Government Resolution and Notification on the subject is annexed—Statement 11 at Appendix.

(d) It has not begun to function yet.

2. (a), (b), (c), (d) Yes. All the points raised have been discussed in the replies to parts A and B of the questionnaire.

3. This Government considers that there should be a Central Road Board. Some of the functions of the Board have already been referred to in replies to previous questions. As regards its constitution this Government is of the opinion that it should contain a strong technical element and that the members should have sufficiently long tenure of office to ensure continuity of policy.

Briefly the main function of the Central Road Board will be to co-ordinate the road programmes of the various provinces and Indian States. At the same time a Central Road Board with other than advisory powers in regard to the expenditure of provincial funds cannot be contemplated and hence, in order that it should be able to function effectively at all, the Board must have other funds at its disposal which it can allocate for specific objects. As indicated in the replies to part B of the questionnaire and particularly in the reply to question B 6(a), this Government would be prepared to agree that any portion of existing customs and excise duty on petrol which the Central Government might place at the disposal of the Central Road Board, either in annual grants or in the form of a Central Road Fund, should be at the disposal of the Central Road Board to be spent on specific road works. This Government is not now prepared to agree that any portion of the proposed *new* petrol tax should be placed at the disposal of the Central Road Board.

The advisory functions of the Central Board then might be defined somewhat as follows :—

(a) To fix on the all-India roads and to draw up a building programme for them.

(b) To advise if asked to do so on inter-provincial road problems and problems which will arise when roads pass through Indian States. The advice of this board will be useful in case of overlapping of local taxation, reciprocal exemptions, etc.

(c) To act with the Railway Board and local Government in respect to inter-provincial developments, composite road and railway bridges and types of level crossings and over-bridges and similar matters.

(d) To consider existing laws in consultation with local Government with a view to making recommendations as to amendments.

4. An alternative to a Central Road Board would be periodical conferences of representatives of all provinces. Government is inclined to favour the constitution of a permanent Central Board because :—

(1) The existence of such a board will ensure continuity of policy.

- (2) There will be so many problems requiring examination in the earlier years that excessive delays will occur if no permanent body exists to deal with them and act at least as a medium for dissemination and interchange of ideas if not for definition of policies.

#### D.—GENERAL.

1. In the reply to questions A. 6 and 7, this Government has expressed itself strongly in favour of financing new development through loans. In coming to this decision Government has been influenced by the consideration that the present progress in road construction and development financed from current revenues does not satisfy modern requirements. It has also been observed that in no other part of the British Empire, or perhaps in the world, except in India are roads constructed entirely from current revenues. The only hope for reasonable development appears to lie in assistance being obtained from loan funds so that posterity will pay to some extent for improvements which will benefit posterity.

2. This Government is not in favour, at present, of building long lengths of road capable of carrying heavy lorry traffic. The demand in this province is for more bridges on existing roads and for more roads of the existing type and until this demand is to a great extent satisfied Government does not consider money should be spent on other forms of road development. Government is further supported in this conclusion by the fact that, except in a few towns and large industrial centres, there is no demand for heavy lorry traffic. A further consideration is that a mile of modern, that is, bitumen or concrete, road costs nearly as much to construct as a mile of railway and its maintenance and renewal costs more. The actual running cost of heavy motor transport is well known to be more than the running cost of railway rolling stock. Railway freight however covers the total cost of transport including the cost of the track while road freight covers cost of transport only and the community pays the cost of the road. Hence it can be said generally that heavy motor transport costs the community more than rail transport and that, except in certain conditions, it is not justifiable in the conditions pertaining in this province.

3. In the reply to question A. 8, this Government has stated its opinion that there is considerable room for both road and railway development before road and railway interests can even begin to compete to any appreciable extent.

The province has an area approximately equal to that of Great Britain and of New Zealand. The population is  $\frac{1}{3}$  of that of Great Britain but 10 times that of New Zealand. The total mileage of surfaced and unsurfaced roads compares as follows :—

	Surfaced.	Unsurfaced.
Central Provinces ...	4,670	3,770
New Zealand ...	28,553	36,447
Great Britain ...	155,000 (excluding Scotland.)	

It will be seen that there is thus room for very considerable expansion.

## APPENDIX.

## Statement 1.

Details of a few of the principal existing bridges on provincial roads in the Central Provinces and Berar—(question No. A.-1 (ii)).

Serial No.	Name of road.	Class of bridge.
1	Nagpur-Kamptee Road . . .	High level bridge over Kanhan near Kamptee.
2	Nagpur-Amraoti Road . . .	Bridge over Jamb river.
3	Ditto . . .	Submerged bridge over Tewsa river.
4	Ditto . . .	Ditto Wardha river.
5	Great Eastern Road . . .	High level bridge over Nag Nulla.
6	Ditto . . .	Submerged bridge over Kanhan river at Mahoda.
7	Ditto . . .	Bridge over the river at the boundary between Nagpur and Bhandara districts.
8	Ditto . . .	Jam Nulla submerged bridge.
9	Ditto . . .	Submerged bridge over Sheonath.
10	Ditto . . .	Karun submerged bridge.
11	Nagpur-Saoner-Multai-Betul Road .	Submerged bridge over Kolar river.
12	Ditto . . .	Ditto Wardha river.
13	Ditto . . .	Ditto Machna river.
14	Nagpur-Chhindwara Road . . .	Ditto Jam river.
15	Ditto . . .	Ditto Kanhan river.
16	Ditto . . .	Kulbhera river submerged bridge.
17	Nagpur-Jubbulpore Road . . .	High level bridge over Wainganga.
18	Amraoti-Ellichpur-Burhanpur Road	Ditto Phedi river.
19	Ellichpur-Betul Road . . .	Submerged bridge over Machna river.
20	Ditto . . .	Ditto Tapti river.
21	Ditto . . .	4 submerged bridges over Purna between 34 to 37 miles.
22	Ditto . . .	Iron girder bridge over the Purna.

Details of a few of the principal existing bridges on provincial roads  
in the Central Provinces and Berar—*contd.*

Serial No.	Name of road.	Class of bridge.
23	Ellichpur-Betul Road . . .	Submerged bridge over the Purna.
24	Ditto . . .	Ditto on the Arna river.
25	Wardha-Pownar-Sailur Road .	Bridge over Bor river.
26	Wardha-Arvi Road . . .	Submerged bridge over Dham river.
27	Ditto . . .	Ditto Anji river.
28	Akola-Akot Road . . .	Ditto Purna river at Wagholi.
29	Ditto . . .	Iron girder bridge over Moorna.
30	Mehkar-Malegaon-Basim-Mangrul- pir-Karanja-Khelda Road.	Bridge over Penganga river.
31	Ditto . . .	Ditto Adan river.
32	Chikli-Jalna Road . . .	Submerged bridge over Chotapurna river.
33	Yeotmal-Dhamangaon Road .	High level bridge over Bimbla river.
34	Betul-Itarsi-Hoshangabad Road .	Majardoh river submerged bridge.
35	Ditto . . .	Machna river submerged bridge at Shahpur.
36	Chhindwara-Matkuli-Hoshangabad Road.	Submerged bridge over Pench river.
37	Matkuli-Pachmarhi Road . .	Ditto Denwa river.
38	Multai-Chhindwara-Seoni Road .	
39	Ditto . . .	Submerged bridge over Kanhan river.
40	Ditto . . .	Ditto Pench river.
41	Narsinghpur-Laknadon . . .	Machna river submerged bridge.
42	Ditto . . .	Kanera river submerged bridge.
43	Jubbulpore-Damoh-Baxwaho Road <i>via</i> Katangi.	Submerged bridge over Magardah nulla.
44	Ditto . . .	Submerged bridge over Hiran river.
45	Jubbulpore Damoh <i>via</i> Temdu- khera.	Ditto on Goraya river.
46	Ditto . . .	Bairama river submerged bridge.



Details of a few of the principal existing bridges on provincial roads in the Central Provinces and Berar—*concl'd.*

Serial No.	Name of road.	Class of bridge.
47	Mandla-Seoni Road . . .	Thama river submerged bridge.
48	Ditto . . .	Submerged bridge over Wainganga at Seoni.
49	Chhindwara-Narsinghpur Road .	Pench river submerged bridge.
50	Ditto . . .	Thel river submerged bridge.
51	Ditto . . .	Tharkna nulla submerged bridge.
52	Ditto . . .	Barurewa river submerged bridge.
53	Saugor-Damoh Road . . .	Submerged bridge over Bias river.
54	Ditto . . .	Gadheri river submerged bridge.
55	Ditto . . .	Kopra river submerged bridge.
56	Saugor to Jhansi Road . . .	Submerged bridge over Dhasan river.
57	<sup>G C P</sup> Saugor to Rahatgarh . . .	Dhasan river high level bridge.
58	Ditto . . .	Bina river high level bridge.
59	Saugor-Kareli Road . . .	Bewas river submerged bridge.
60	Nagpur-Naghbir Mul Road . . .	Submerged bridge over Maru river.



## Statement 2.

List of bridges considered to be most urgent.—(question No. A-1 (iii).)

Serial No.	Name of road.	Class of bridge and name of crossing.
1	Nagpur Jubbulpore Road . . .	Bridge over Nerbudda near Jubbulpore.
2	Jubbulpore-Katni Road . . .	Submerged bridge over Hiran river.
3	Burhanpur-Ellichpur Road . . .	Bridge over Tapti river.
4	Amraoti-Burhanpur Road . . .	Bridge over Dewal river.
5	Ditto . . .	Ditto Khokri Nulla.
6	Shimga-Bemetara Road . . .	Construction of a submerged bridge or improvement to the existing causeway over the Sheonath river.
7	Great Eastern Road . . .	Bridge over the Mahanadi river at Arang.
8	Ditto . . .	Construction of a bridge over Jonk river.
9	Ditto . . .	Bridge over Kulhan river.
10	Ditto . . .	Ditto Sankti Nulla.
11	Drug Balod Road . . .	Construction of submerged bridge over Phulgaon Nulla.
12	Drug Gunder Delhi Balod Road . . .	Construction of submerged bridge over Tandulla Nulla.
13	Kamptee-Dahagaon Road . . .	Bridge over Kolar river.
14	Narsinghpur-Kareli Road . . .	Bridge over Barurewa river.
15	Nagpur-Chhindwara Road . . .	Bridge over Kanhan at Ramakona.
16	Old Nagpur Dak Line . . .	Bridge across the Wardha river.

Statement 3.—(question No. A-I(vi)).

Year.	Total mileage of roads.				Expenditure.		District Councils.		Expenditure.		Total mileage of roads in the province.
	Provincial.		Arterial.		Construction.	Maintenance.	Surfaced.	Unsurfaced.	Construction.	Maintenance.	
	Under P. W. D.		Under District Councils.								
	Surfaced.	Unsurfaced.	Surfaced.	Unsurfaced.							
	Miles.	Miles.	Miles.	Miles.							
1913-14	3,090	2,240	..	..	11,91,795	16,41,193	380	2,480	1,49,820	2,32,921	8,130
1923-24	3,340	1,600	740	1,020	12,84,319	18,50,249	260	1,250	...	...	8,220
1924-25	3,490	1,650	730	890	11,61,151	26,28,790	260	1,290	1,60,411	1,54,141	8,390
1925-26	3,350	1,610	900	880	13,74,026	29,25,011	300	1,280	2,50,257	2,72,885	8,410

Not available.

\* Not available.

**Statement 4.**  
(Form referred to at A-I (*vide*) of the questionnaire—Central Provinces.)

Details of expenditure on road maintenance in 1926-27.  
construction

Class.	Mileage to nearest ten.			Provincial expenditure Rs. 1,000's.			Local Fund expenditure Rs. 1,000's.			Total expenditure Rs. 1,000's.	
	Surfac- ed.	Unsur- faced.	Total.	Surfaced.	Unsur- faced.	Total.	Surfaced.	Unsur- faced.	Total.	Surfaced.	Unsur- faced.
1	2	3	4	5	6	7	8	9	10	11	12
1. Provincial roads	Miles. 3,320	Miles. 1,630	Miles. 4,950	2,410 1,479	234 128	2,644 1,607	Nil	Nil	Nil	3,179 Rs. 681	549 Rs. 146
2. Provincial roads main- tained by District Councils.	1,050	870	1,920	642 (not known separately)	180	822 407	Nil	Nil	Nil	Not known	Not known
3. District Council roads.	300	1,270	1,570	...	...	...	127 Not known	135 Not known	262 175	...	...
Total	4,670	3,770	8,440	3,052 Not known	414 Not known	3,466 2,014	127 Not known	135 Not known	262 175	...	...
4. State roads	...	...	...	...	...	...	...	...	...	...	...

NOTE 1.—Separate expenditure on the construction of new roads is not known accurately as it is impossible to distinguish between (1) Cost of constructing bridges on existing roads, (2) Cost of widening roads, (3) Cost of raising roads in class and (4) Cost of constructing existing new roads. The expenditure on all these items is recorded under the head "construction". The cost of construction of a 9 feet wide metalled road averages about Rs. 20,000 per mile in Berar and Rs. 15,000 in the C. P. See also statement 9.

2.—The figures for 1927-28 will not differ substantially from the figures recorded above.

Statement 5—(question No. A-2).

Statement showing proportion of surfaced and unsurfaced roads to area and population in the Central Provinces.

Year.	C. P. districts and Berar area in square miles.	Total population (as per census of 1921.)	Rural population.	Total mileage.		Proportion of surfaced roads.			Unsurfaced roads.		
				Surfaced.	Unsurfaced.	Proportion per 100 sq. miles of area.	Proportion per million of total population.	Proportion per million of rural population.	Proportion per 100 sq. miles of area.	Proportion per million of total population.	Proportion per million of rural population.
1	2	3	4	5	6	7	8	9	10	11	12
1926-27	Sq. miles. 99,876	13,912,760	12,519,493	Miles. 4,670	Miles. 3,770	4.68	3.4	3.7	3.8	2.7	3.0

Statement 6—(question No. A-3.)

	1924-25.	1925-26.	1926-27.	Average.
(a) (i) <u>Total expenditure on roads from provincial revenue</u>	37,89,950	43,04,040	55,79,184	
Total provincial revenue	6,21,17,283	6,05,86,490	6,15,28,393	
	Percentage 6.10	7.10	9.06	7.42
(ii) <u>Total expenditure on roads from local funds</u>	3,14,552	5,03,142	4,37,000	
Total local fund revenue	65,12,263	68,77,032	82,69,043	
	Percentage 4.83	7.30	5.28	5.80
(b) The incidence per head of —				
(i) Total population 13,912,760	annas 4.36	5.00	6.40	5.25
(ii) Rural population 12,519,493	annas 4.84	5.50	7.12	5.82
(iii) Rural population of all road expenditure from local funds	annas .40	.61	.56	.53

} of all road expenditure from provincial revenues.

**Statement 7—(question No. B-1.)**  
 Urban and rural bus services in C. P.

District.	From	To	Distance.	No. of vehicles employed.	Remarks.
Nagpur .	City .	District Courts .			
Do. .	Ramtek .	Railway station .			
Bilaspur .	Bilaspur town .				
(Jubbulpore reply not received)					
Nagpur .	Nagpur .	Bhandara .			
	Do. .	Seoni .			
	Do. .	Khapa .			
	Do. .	Umrer .			
	Do. .	Pauni .			
	Kamptee .	Seoni .			
	Ramtek .	Seoni .			
Chanda .	Chanda .	Ahiri .			
	Do. .	Sironcha .			
	Do. .	Saoli .			
	Brabmapuri .	Sindewahi .			
Wardha .	Wardha .	Arvi .			
	Do. .	Selu .			
	Do. .	Deoli .			
	Do. .	Hinganghat .			
	Do. .	Waigaon .			
	Selu .	Paunar railway station.			
	Deoli .	Dahegaon railway station.			
	Hinganghat .	Samandrapur .			

Urban and rural bus services in C. P.—*contd.*

District.	From	To	Distance.	No. of vehicles employed.	Remarks.
Balaghat	Arvi . . .	Karanja . . .			
	Do. . . .	Pulgaon . . .			
	Do. . . .	Ashti . . . .			
	Balaghat . . .	Ukwa . . . .			
	Do. . . . .	Waraseoni . . .			
Mandla . .	Baihar . . . .	Lamta . . . .			
	Lanji . . . . .	Angaon . . . .			
	Jubbulpore . .	Mandla . . . .			
Bilaspur . .	Dindori . . . .	Mandla . . . .			
	Do. . . . .	Jubbulpore . .			
	Bilaspur . . . .	Mungeli . . . .			
Akola . . . .	Akaltara . . . .	Sheorinarayan .			
	Kola . . . . .	Lormi . . . . .			
	Akola . . . . .	Akot . . . . .			
	Do. . . . .	Basim . . . . .			
	Do. . . . .	Telhara . . . .			
	Basim . . . . .	Hingoli . . . .			
	Do. . . . .	Pusad . . . . .			
	Do. . . . .	Mangrulpur . .			
	Do. . . . .	Risod . . . . .			
	Malegaon . . . .	Mehkar . . . . .			
Saugor . . . .	Paras . . . . .	Balapur . . . . .			
	Murtizapur . . .	Karanja . . . .			
	Saugor . . . . .	Banda . . . . .	20		
	Do. . . . .	Shahgarh . . .	43		
	Do. . . . .	Surkhi . . . . .	16		
	Do. . . . .	Deori . . . . .	38		



Urban and rural bus services in C. P.—*contd.*

District.	From	To	Distance.	No. of vehicles employed.	Remarks.
	Saugor . .	Rehli . .	25		
	Do. . .	Rahatgarh . .	24		
	Do. . .	Malthone . .	38		
	Do. . .	Bandri . .	17		
	Do. . .	Behrole . .	17		
	Do. . .	Garhakota . .	29		
	Banda . .	Shahgarh . .	23		
	Do. . .	Barantha . .	20		
Damoh . .	Damoh . .	Jubbulpore . .	5		
	Do. . .	Hatta . .	3		
	Do. . .	Saugor . .	1		
Seoni . .	Seoni . .	Lakhmadon . .			
	Do. . .	Chappara . .			
	Do. . .	Jubbulpore . .			
	Do. . .	Nagpur . .			
Narsinghpur . .	Gadarwara . .	Sinkhera . .			
	Kareli . .	Saugor Road . .			
Chhindwara . .	Chhindwara . .	Narsinghpur . .			
	Do. . .	Seoni . .			
	Pandhurna . .	Naasar . .			
	Do. . .	Nagpur . .			
Hoshangabad . .	Hoshangabad . .	Itarsi . .			
	Harda . .	Handia . .			
	Piparia . .	Pachmarhi . .			
Nimar . .	Khandwa . .	Pandhiana Road . .	...	3	
	Do. . .	Mortaka . .	...	4	
	Mortaka . .	Mandhatta . .	...	5	

Urban and rural bus services in C. P.—*concl'd.*

District.	From	To	Distance.	No. of vehicles employed.	Remarks.
Raipur .	Raipur .	Arang .	22	2	
	Bhattapara .	Balod Bazar .	15	1	
Amraoti .	Amraoti .	Teosa .			
	Do. .	Badnera .			
	Do. .	Ellichpur .			
	Do. .	Chandur Bazar .			
	Do. .	Morsi .			
	Ellichpur .	Anjangaon .			
	Do. .	Chikalda .			
	Morsi .	Warud .			
Buldana .	Buldana .	Malkapur .			
	Do. .	Chikli .			
	Do. .	Deolghat .			
	Do. .	Dhad .			
	Khamgaon .	Mandura .			
	Do. .	Chikli .			
	Do. .	Sheogaon .			
	Chikli .	Mehkar .			
	Do. .	Deolgaon Raja .			
	Deolgaon Raja .	Waghrud .			
	Nandura .	Jalgaon .			
Yeotmal .	Yeotmal .	Dhamgaon .			
	Do. .	Pandarkaora .			
	Darhwa .	Digras .			

**Statement 8—(question No. B-3).**

*Provincial.*—The only provincial taxation is in the form of registration fees.

The fees are as follows :—

For private cars . . . Registration Rs. 16 paid  
once only.

For taxi . . . . . Registration Rs. 6 paid  
annually.

... Rs. 30 owner's licence  
also paid annually.

Total . . . Rs. 46.

In Berar owner's licence  
is Rs. 35.

For heavy lorries . . . Registration Rs. 32 paid  
annually.

Rs. 30 owner's licence  
also paid annually.

*Local.*—Local taxation is assessed by municipalities under the rules quoted below. A list of taxes imposed by various municipalities under these rules is attached.

The Central Provinces Municipalities Act, II of 1922, Chapter IX.  
Imposition, assessment and collection of taxes.

*Imposition of taxes.*

66. (1) A Committee may, from time to time and subject to the provision of this Chapter, impose in the whole or any part of the Municipality any of the following taxes, for the purposes of this act, namely :—

\* \* \* \* \*

(c) A tax payable by the owner, on all or any vehicles or animals used for riding, driving, or burden or on dogs, where such vehicles, animals or dogs are kept within the limits of the Municipality ;

(d) A toll on vehicles and animals used as aforesaid entering the limits of the Municipality, and on boats moored within those limits.

## List of municipalities that have introduced taxes on motor cars.

Name of municipality.	Rate of Tax.					Remarks.
	Motor exceeding 2 tons.	Motor omnibus.	Motor for hire.	Motor not for hire.	Motors.	
	Rs. per annum.	Rs. per annum.	Rs. per annum.	Rs. per annum.	Rs. per annum.	
Akola . . . . .	75	50	40	20	...	
Jubbulpore . . . . .	50	...	...	12	...	
Raipur . . . . .	50	...	...	...	...	
Yeotmal . . . . .	"	...	...	...	6	
Ellichpur city . . . . .	...	...	...	...	14	
Nagpur . . . . .	...	...	...	...	4	
Wun . . . . .	...	15	10	5	...	Notice issued for objec- tion.
Hoshangabad . . . . .	32	24	15	16	5	Ditto
Digras . . . . .	...	20	15	10	5	Ditto.
Buldana . . . . .	...	15 (with 10 seats), 10 (with 8 seats).	...	...	...	Ditto.
Harda . . . . .	75	50 (with 12 seats) 40 (with 5 to 10 seats).	...	8	...	
Drug . . . . .	50	25	...	...	25	
Narsinghpur . . . . .	...	50	...	...	4	
Notified A. C. Champa . . . . .	...	...	...	...	8	
Notified A. C. Bhatapur . . . . .	...	...	...	...	...	
Saugor . . . . .	30	20 (with 8 seats). 15 (with less than 8 seats).	...	...	...	
Khandwa . . . . .	50	35 (with 10 seats).	...	...	{ 12 for cars. 15 for lorries.	Ditto.
Bhandara . . . . .	15	10	...	...	...	
Narsinghpur cum Kundeli . . . . .	50	...	...	...	25	
Balaghat . . . . .	40	...	...	...	...	
12 outside municipi- pal limits.	12	...	25	...	12	
Seoni . . . . .	15	...	10	...	5	

## Statement 9.

Statement of roads constructed and raised in class and expenditure incurred on them during the three years ending November 1927.

Circle.	Estimated cost of original works communications during last 3 years.	Estimated cost of original works now under construction.	Total expenditure incurred on original works communications.				Total.	Roads newly constructed during 3 years.	Roads raised in class during 3 years.	Total.
			1924-25.	1925-26.	1926-27.	April to November 1927.				
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Miles.	Miles.	Miles.
First Circle	14,18,759	...	...	3,96,613	8,50,299	74,620	13,21,532	24	66	110
Second Circle	42,65,265	9,10,927	5,56,063	4,44,386	2,30,924	1,71,057	14,02,430	40	60	102
Third Circle	74,86,809	...	3,31,153	5,09,542	10,75,642	7,30,816	26,55,153	55	196	252
Total	1,81,20,833	9,10,927	8,87,216	13,50,541	21,56,865	9,84,493	53,79,115	121	343	464
District Councils Amraoti, Yeotmal, Akola, Buldana	22,84,617	...	41,669	2,24,539	3,24,854	1,20,001	7,08,063	12	30½	42

## Statement 10.

Statement showing the length, classes and cost of maintenance of roads  
in the Chhattisgarh States as per road schemes of 1918.

Names of States.	Length of roads.		Repairs.	
	Surfaced.	Unsur- faced.	Surfaced road.	Unsurfaced road.
	Miles.	Miles.	Rs.	Rs.
Nandgaon State . . . .	21	131	3,150	9,075
Khairagarh State . . . .	...	88	...	2,965
Chhuikhadan State . . . .	...	18	...	1,675
Udaipur State . . . .	...	32	...	1,280
Phuljhar Zamindari . . . .	...	54	...	1,512
Bindra Nawagarh Zamindari . .	...	17	...	255
Total .	21	340	3,150	16,762
			19,912	
	20	340	20,000	
Total miles .	360		20,000	

## Statement 11—[question No. C. 1.]

*Notification No. 690-F.-W. B., dated the 30th November 1927, by the Government of the Central Provinces, Public Works Department (Buildings and Roads Branch).*

His Excellency the Governor acting with his Minister for Agriculture is pleased to direct that the Board of Communications constituted in pursuance of General Administration Department Resolution No. 1416-265-IV, dated the 2nd August 1927, shall consist of the following members:—

- (a) The Hon'ble Minister for Agriculture—*Chairman.*
- (b) (1) The Commissioner, Nagpur Division.
- (2) The Financial Secretary to Government.
- (3) The Chief Engineer, Buildings and Roads Branch.
- (c) (1) Mr. G. P. Jaiswal, M.L.C.
- (2) Mr. T. J. Kedar, M.L.C.
- (3) Mr. M. P. Kolhe, M.L.C.
- (d) (1) Rao Bahadur V. M. Jakatdar, B.A., B.L., Chairman, District Council, Bhandara, representative from the Nagpur Division.
- (2) Bechar Raghubir Sinha, Talukdar and Rais Chairman, District Council, Jubbulpore, representative from the Jubbulpore Division.
- (3) Rai Bahadur Govind Rao Mandloi, Chairman, District Council, Nimar, representative from the Nerbudda Division.
- (4) Pandit Ravi Shankar Shukla, B.A., LL.B., Chairman, District Council, Raipur, representative from the Chhattisgarh Division.
- (5) Mr. B. R. Patel, B.A., LL.B., Chairman, District Council, Buldana, representative from the Berar Division.
- (e) (1) Mr. A. E. Joyce, M.I.E., Superintending Engineer, Third Circle, Technical Member.
- (2) Representative of the motor car industry. [*Vacant at present.*]
- (f) Mr. G. M. McKelvie, B.Sc., Under Secretary to the Government, Public Works Department, Buildings and Roads Branch—*Secretary.*



*Resolution No. 1416-265-IV, dated the 2nd August 1927, by the Government of the Central Provinces, General Administration Department.*

In Resolution No. 1322-265-IV, dated the 21st July 1927, Government dealt with the re-organization of the Standing Committee of the Legislative Council and Advisory Boards, which have been constituted in the past in order to assist Government in the administration of its various departments, and in paragraph 3 (ii) of that Resolution it was stated that there would be in future three non-statutory Boards, each under the Chairmanship of the Hon'ble Minister for Agriculture, which would deal with Agriculture, Industries and Communications, respectively. The following rules have now been framed to regulate the constitution and functions of the Board of Communications :—

#### RULES.

1. The Board of Communications shall consist of 15 members, composed as follows :—

- (a) The Chairman, who shall be the Hon'ble Minister for Agriculture.
- (b) Three official members, namely a Commissioner to be selected by Government; the Financial Secretary, and the Chief Engineer, Buildings and Roads Branch.
- (c) Three members nominated by Government on the advice of the Hon'ble the President of the Council from among the members of the Legislative Council.
- (d) Five non-official members to be nominated by Government from Chairmen of District Councils, one each from each Commissioner's division.
- (e) Two technical members nominated by Government at least one of whom shall be a representative of the motor car industry.
- (f) One official of the Public Works Department, who shall act as Secretary to the Board, but shall not be a voting member.

2. All the nominated members of the Board shall be appointed for the life-time of the Legislative Council. Vacancies, as they occur, shall be filled by the authority making the original nomination and in the same manner.

3. It shall be open to the Chairman of the Board to co-opt for the purposes of discussion, but not of voting, any official having expert knowledge which is likely to be of use to the Board.

4. The functions of the Board shall be to advise Government on all matters submitted to it with respect to communications.

5. Meetings of the Board will be summoned by the Secretary under the direction of the Chairman.

6. So far as possible, not less than eight days before the date fixed for the meeting the Secretary will circulate the agenda to the members of the Board, together with a memorandum explaining the nature of each item of the business and copies of any papers directed to be furnished to the Board. Such papers will be returned by the members to the Secretary at the close of the meeting.

7. At the meeting of the Board the Secretary will explain the case. The Chairman will then invite a discussion and the Secretary will record the opinion of the Board. A memorandum of the proceedings will be taken and circulated to members of the Board.

8. Members of the Board who attend meetings should send their travelling allowance bills to the Secretariat for countersignature.

## Replies to the questionnaire submitted by the Government of Assam.

### A.—ROAD DEVELOPMENT.

1. A map\* of the province of Assam to the scale of 16 miles = 1" is sent herewith. In this map only the principal roads under the following heads have been delineated :—

P. W. D. metalled roads.

Local board metalled roads.

P. W. D. unmetalled roads.

Local board unmetalled roads.

1. (i) The mileage of roads of different classes and types is shown in reply to 1 (vi).

(ii) & (iii) The bridges cannot be shown as the scale of the map is too small and the number of bridges existing and required are too numerous. The principal ferries as far as possible have been shown in the map.\*

(iv) The Public Works Department are responsible for the maintenance and construction of the provincial, central civil, and Imperial military roads whilst local boards are responsible in similar manner for all local board Roads.

(v) The roads under the P. W. D. in Assam are constructed and maintained from provincial revenues. In addition to the expenditure from provincial revenues, a Tea Rates Road Fund has recently been formed and the proceeds of this fund as levied under Section 3-A of Act VI of 1926 are devoted to the improvements of the communications in the districts from which the rates are collected. The rules for the administration of the fund (Finance Department Notification No. 3885-F., dated the 7th June 1927) are as follows :—

#### *Rules for the Administration of the Tea Rates Road Fund.*

The proceeds of the additional rate levied under Section 3-A of the Assam Local Rates Regulation, 1879, as amended by Act VI of 1926, shall be to a fund, which fund shall be called "The Tea Rates Road

2. The receipts shall be credited to the Tea Rates Road Fund in each district treasury and shall form part of a combined fund for the whole province.

3. The fund shall be available for :—

(a) expenditure on the construction or improvement of road communications in any of the districts from which the additional rate is levied ;

(b) the allotment of grants to local bodies for such construction or improvement ; and

(c) financing loans for the purpose of such construction or improvement.

---

\*Not printed.

4. Cheques allotting funds for the above purposes shall be drawn by the Secretary of the fund in favour of the Executive Engineer of the district concerned or the local authority, as the case may be.

5. The Executive Engineer or the local authority carrying out work allotted to it will make disbursements in the usual way by cheque against the portion of the fund allotted to it.

6. The Comptroller shall send a monthly statement of receipts and expenditure relating to the fund to the Secretary of the fund.

7. A Board consisting of—

- (i) the Finance Member,
- (ii) the Chief Engineer,
- (iii) two members nominated by the Assam Branch, Indian Tea Association,
- (iv) one member nominated by the Surma Valley Branch, Indian Tea Association,

shall be constituted to advise in all matters relating to the administration of the fund. The Assistant Secretary to Government in the Finance Department will be the Secretary to the fund.

8. The accounts of the Tea Rates Road Fund for the province shall be audited annually by the Examiner, Local Fund Accounts.

The accounts of the disbursing officers will be audited by the Comptroller in the case of Executive Engineers and by the Examiner, Local Fund Accounts, in the case of local authorities.

Section 3-A of the Assam Local Rates Regulation, referred to in the above rules, runs as follows :—

“ 3-A. In the case of land under tea cultivation an additional sum shall be levied at the rate which shall bring the total of the local rate on such land to eight annas an acre. The proceeds of such additional rate shall be credited to a Road Fund to be administered under the orders of the local Government for the improvement of the road communications in the districts from which such rate is levied. ”

The Tea Rates Road Fund is however comparatively unimportant. The first collections under the new Act will only be made in the coming year and will be available for expenditure in 1929-30. The estimated yield of the additional rate is 1½ lakhs.

Local board roads in general are constructed and maintained from the local fund. Government gives grants to the local fund, in the shape of general purposes grants (the expenditure of which is at the discretion of the boards and which *may* be wholly or partly applied to roads) and in the shape of grants for communications which *must* be applied to roads. Under Section 42 of the Assam Local Self-Government Act, as amended, boards can with the sanction of Government recover by tolls the cost of construction and maintenance of bridges and metalled roads subject to certain conditions (*e.g.*, the initial cost must be over Rs. 5,000 and the bridge or road must have been

constructed after a certain date). Boards have now the power of levying licence fees on carriages and carts, but the proceeds need not be earmarked for roads. Similarly the proceeds of ferry tolls go into the general local fund of each board and need not be spent on roads.

(vi) & (vii) Please see Appendix I and Appendix II.

2. Area of Assam .. .. .	61,471	square miles.
Population of Assam .. .. .	79,90,246	
Urban population .. .. .	2,58,148	
Rural population .. .. .	77,32,098	

	Under P. W. D.	Under local boards.
Metalled roads .. .. .	400	159·20
Unmetalled roads .. .. .	3,270	5,546·29
Total for the province .. .. .	3,670	5,705·49

	Metalled.			Unmetalled.		
	P.W.D.	L.B.	Total.	P.W.D.	L.B.	Total.
Total mileage of roads in Assam :—						
(a) per hundred square miles of area	·66	$\frac{·26}{·49}$	·92	5·92	$\frac{9·02}{17·27}$	14·94
(b) per 1,00,000 of total population	5·08	1·99	7·07	45·58	69·41	114·99
(c) per 1,00,000 of rural population	5·25	$\frac{2·05}{2·32}$	7·30	48·41	$\frac{71·73}{80·93}$	120·14

*Note.*—The bottom figures in local board columns show percentage excluding hill districts, i.e., local board areas only and the top figures, including them. The local board area is 32,118 square miles and population is 68,53,176.

3. (a) (i) Total expenditure on roads Rs.

from provincial revenue 17,59,938

$\frac{17,59,938}{2,59,97,415} = 6·7$  per cent.

Total provincial revenue 2,59,97,415

(ii) Total expenditure on roads from local funds ..

9,31,986

$\frac{9,31,986}{16,79,116} = 55·5$  per cent.

Total local funds revenue 16,79,116

(b) (i)  $\frac{17,59,938}{79,90,246} = \text{Rs. } ·22 = 42·5$  pies.

79,90,246

17,59,938

(ii)  $\frac{17,59,938}{77,32,098} = \text{Rs. } ·23 = 44$  „

77,32,098

9,31,986

(iii)  $\frac{9,31,986}{68,53,176} = \text{Rs. } ·14 = 27$  „

68,53,176

4. No such statistics are maintained at present.

The Government of Assam considers that a census should be taken of all the motor services that have been inaugurated in the different parts of the province, and of the lengths of road on which they run, and to consider the practicability of improving particular roads to take motor traffic where such is needed.

5. (a) As far as the P. W. D. roads are concerned, co-ordination exists between the various P. W. D. divisions, and the Chief Engineer is the co-ordinating authority. As regards local board roads, little or no co-ordination exists at present between various local boards or between the various local boards and the Public Works Department. Public Works Department officers are however Inspectors of works for local boards. They examine local board works and give advice but have no powers.

(b) No co-ordination exists with the adjacent provinces. There is no State adjacent to this province except the State of Manipur. The Khasi and Jaintia Hills do not comprise a separate State, but are not part of British India as regards the whole district.

6. The note herewith describes the defects in the existing road system.

The defects will be remedied *pari passu* with the magnitude of the development undertaken. No such development can take place until a reclassification of the existing road system has been made. The extent to which the defects will be remedied will depend entirely on the funds that can be made available for expenditure and improvement.

#### NOTE.

In Assam there are only two roads which are of the type surfaced, bridged and drained throughout, and the remainder of the roads with the exception of a few small surfaced sections, are for the most part narrow embankments.

Under the charge of the Public Works Department in the plains section the total length of metalled road is 134 miles, the unmetalled lengths aggregating 1,063 miles, to these must be added the roads under the charge of local boards of which 143 miles are metalled and 5,180 miles unmetalled. These figures show 277 miles metalled and 6,242 miles unmetalled, out of a total of 6,519. These figures do not include 2,261 miles of bridle paths nor do they include 370 miles of unmetalled and 286 miles of metalled roads in the Hill districts.

Unmetalled roads are for the most part embankments varying in width from 12 to 16 ft. They are not all above high flood level and very considerable lengths go under water during the rainy season. At that period of the year the road surface becomes so soft that traffic is almost impassable. Furthermore, owing to the low lands going under water the cattle from the neighbouring districts congregate on the embankments and do a great deal of damage. Again the indigenous bullock carts which are used throughout the province with their narrow tyres plough up the embankments, so that immediately the rains commence, traffic in many places automatically ceases.



The roads are intersected by a very great number of bamboo bridges which are washed away when the flood season comes on. Where traffic must be maintained and permanent bridges are not in existence ferries have to be inaugurated. When the cold season arrives each and every bamboo bridge must be reconstructed to maintain ordinary traffic; and now that motor services are springing into being, we can only maintain these bridges with extreme difficulty as they are quite unsuitable for motor traffic. We have a very considerable number of timber bridges which are dangerous for heavy traffic. We have put in a number of screw pile bridges built entirely of steel and are continuing to put in many more but are prevented from constructing as many as we would wish owing to a scarcity of funds. We have found these screw pile bridges to be suitable for the roads in Assam as the soil throughout the plains is soft and alluvial and permits of quick construction. Materials suitable for brick making are so scarce that it would not be economical to build bridges of masonry.

On account of the motor traffic now steadily on the increase, it has become necessary to metal roads where traffic demands a better surface. But before we can take up metalling we must first raise the embankments above high flood level and increase the width at the crest to at least 20 ft. Unless we do this our metalled sections will go under water and we will experience great difficulty in maintaining them in good order for the ensuing cold weather.

Raising and widening of roads demand that we should have free access to the land contiguous to the road for the purpose of obtaining sufficient soil to widen and increase the embankment and this involves in most cases land acquisition which is a very expensive proceeding and one which considerably delays the taking up of any project.

In the plains of Assam there are very few places where stone suitable for metal is available and to go to the hills involves heavy carriage. A detailed survey of stone quarries suitable for the supply of metal was made a year ago: *vide* Mr. Cormack's report\* on this subject. Of the places referred to in this report some have since been found unworkable, for various practical reasons, and there are very few places where crushing plant can be installed.

With regard to labour, it is necessary to point out that it is not available in Assam and that all workers employed have to be recruited from other provinces. The climate of the province necessarily entails a short working season, which begins in November and closes at the end of April. After April it is difficult to induce imported labour to stay.

In the year 1926 a Road Board was formed to consider the advisability of metalling the worst portions of the main roads and on their advice some 50 miles of road in 31 places were taken up. In no case was a length of 5 miles exceeded and in some instances the lengths did not exceed  $\frac{1}{2}$  a mile. This pepper pot system cannot be considered either economical or satisfactory and if any progress is to be made in improving the roads in the province, it will be imperative to look at the situation in an entirely different manner. It will be necessary to select roads where metalling can be done over a considerable length as demanded by traffic and commercial activity. To this end it will be required to work from a road head convenient if possible to a quarry. Plant

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\* Not printed.



will be required to crush and break the stone and vehicles will be needed to take the metal to the roads. Rollers will have to be furnished to do the necessary consolidation. In doing work of this kind we cannot overlook the question of bridging as no plant and no metal can be handled without there being a means of transporting them across the rivers and jans. Bridge projects must therefore precede metal work and before we take up the metalling we must complete the necessary earthwork in raising and widening. This means that our earthwork must be immediately followed by a bridging programme.

7. (a), (b) & (c) The nature and rate of development can be best gauged from the reply to question 6 dealing with the defects in the existing road system. Development is entirely dependent upon improvement and construction of bridges and when these have been built a metalling programme will be pushed on in those sections where a better surface is needed than that which the existing sand and clay surface affords for motor traffic. There is no limit to the rate of development as it is considered that there is at present such a demand for motorable roads as to be entirely beyond the means of the province to provide.

In the last July session of the Assam Legislative Council a resolution was passed that except in years of financial stringency a minimum sum of five lakhs be provided annually for the metalling of unmetalled roads in the plains district of Assam and the sum be administered by a Road Board, the non-official members of which should be elected by the House. The Resolution was accepted by Government and there is at present a Road Board which is functioning in this province for this purpose. The Government however did not consider that this alone was sufficient to tackle the situation and they have at present under their contemplation to take a loan of Rs. 75 lakhs, for the present. If the receipts from the proposed petrol tax justify a further loan, they would welcome a loan of a crore of rupees. One other possible source is the levy of terminal tax on goods and the proceeds of which should be devoted to the improvement of communications. If Government finally decide to take the loan of 75 lakhs they will classify the roads as follows for the purpose of improvements :—

(A) Main trunk road system to include all roads connecting headquarters and subdivisional headquarters stations and all important feeder roads connecting these main trunk roads with railway and steamer stations ; and

(B) All other main and feeder roads connecting with this system.

A suggestion is under consideration that after the classification is settled,  $\frac{1}{4}$  of the loan only should be devoted to bridging, raising and widening, and metalling the most important lengths of roads, and  $\frac{3}{4}$  of the loan on bridging, widening and raising and gravelling certain lengths, which it is not thought possible to maintain by mechanical methods of maintenance, and to bridge, raise and widen only, and maintain by mechanical methods, i.e., caterpillar tractors hauling graders with roller attached, such additional lengths which it is thought can be so maintained without gravelling. This suggestion will be discussed by the Assam Road Board in due course. The main trunk road system with its feeders to railway stations and steamer ghats will probably total some 2,000 miles, and will be dealt with gradually in similar manner, by

loans. The main principle involved is to bridge, widen, and raise, as much of the system as can be dealt with for the present by the proposed loan, in advance of such lengths, which in view of their importance, it is necessary to metal immediately. The lengths, in advance of the roads which must be metalled at once, are to be gravelled or maintained by mechanical methods. On such a programme when more funds are available, the work of completing the metalling of our main trunk road system can be proceeded with apace. By this method a far larger area will be tapped and greater mileage of roads thrown open for motor traffic.

With regard to the improvements of communications under local boards, it might be possible to levy a separate road cess or to enhance the present road cess. This might be collected in the same way as, and along with, the local rate, or it might form an earmarked portion of the existing local rate, which would have to be enhanced, *e.g.*, it might be decided to raise the local rate to one anna six pies in the rupee of land revenue, etc., and definitely to assign say, nine pies on the total proceeds of communications. As this would be a definite source of revenue, a loan could be raised for improvements earmarking in turn a portion of this increased local rate for service of the loan. It is difficult, if not impossible, for boards to undertake large improvements at the present time, as they have very little power of taxation, and their regular income expands but slowly unless Government increase it with special grants. Any increase in local taxation is however unlikely to be sanctioned by the Assam Legislative Council.

8. Our present policy is to feed the railways and steamer companies by means of good feeder roads and it is assured that good feeder roads will bring them more traffic. There exists a Railway and Steamer Communication Advisory Board in this province where representatives of the railways and steamer companies can discuss matters with the officers of Government. The constitution of the Board is as follows :—

The Chief Engineer	.. .. .	<i>President.</i>
The Commissioner, Assam Valley division.	}	<i>Members.</i>
The Commissioner, Surma Valley and Hill division.		
The Agent, Assam Bengal Railway.		
The Senior Government Inspector of Railways, Circle No. II.		
A representative of the Rivers Steam Navigation Company, Limited.		
A representative of the India General Navigation and Railway Company, Limited.		
The Chairman, Assam Valley Branch, Indian Tea Association.		
The Chairman, Surma Valley Branch, Indian Tea Association.		
Srijut Bepin Ch. Ghosh, B.L., M.L.C.		
Babu Gopendra Lal Das Choudhury, B.L., M.L.C.		

This Board meets once or twice in a year and deals with matters on which their views are sought by Government. They generally advise Government on

the construction of railways, headways of railway bridges over navigable channels, waterways, steamer communications, etc., etc.

2. In respect of roads running parallel to railways metalling has been postponed on the representation of the railway companies where it was ascertained that there would not be sufficient traffic both for a railway and a road and that the railway would shortly be constructed, *e.g.*, Habiganj-Shaistaganj road. The railway companies also furnish the local Government with a programme of railway extensions contemplated, and the latter do not take up metalling of roads close to these proposed alignments. This system may be further developed by free exchange of views. Railway bridges can also be constructed to take road traffic in addition to the railway traffic, on agreement regarding distribution of the cost of construction between the railway and Government and in fact this has been considered in several cases in Assam.

9. (a) So far little use has been made of the Alipore Test House but it is now proposed, in view of the large programme contemplated, to avail ourselves far more of the facilities afforded.

(b) (i) Mileage of metal roads in the province is comparatively speaking very small indeed, but as regards kuchha roads the modern methods of mechanical improvement of district roads by caterpillar tractors and graders is now under consideration.

(b) (ii) No experiment has yet been made.

(c) No medium of exchange exists at present.

(d) It is considered that such provision should be made as the information so obtained cannot but be invaluable.

B—MOTOR TRANSPORT AND MOTOR TAXATION.  
1. Statement showing the number of motor vehicles registered in Assam.

Year.	Private cars.	Motor bus service (stat- ing the principal bus services).		Taxis.	Commer- cial goods vehicles.	Motor cycles.	Total.	Remarks.
		Urban.	Rural.					
1913-14	..	..	..	..	..	..	..	Information not available.
1923-24	..	35(a)	5(b)	38	93	76	543	
1924-25	..	52(a)	23	117	146	58	711	
1925-26	..	80(a)	32(b)	115	181	52	829	
1926-27	..	119(a)	56(b)	114	224	50	1,004	

Principal bus services are :—

- |     |   |     |                             |    |                      |
|-----|---|-----|-----------------------------|----|----------------------|
| (a) | 1. Silchar railway station to Lakhipur, Sonai, Duarbund and Kabuganj (Cachar District). | (b) | 1. Bilashipara-Fakiragram   | .. | } Goalpara district. |
|     | 2. Shillong Cherra (Khasia and Jaintia Hills District).                                 |     | 2. Lakhipur-Goalpara        | .. |                      |
|     | 3. Assam Transport Ltd.—Tezpur to Dhekiajuli  |     | 3. Goalpara-Krishnai        | .. |                      |
|     | 4. Behali to Boreli   |     | 4. Habiganj-Shaistaganj     | .. |                      |
|     | 5. Bishnath to Mijikajan  |     | 5. Sylhet-Haripur           | .. |                      |
|     | 6. Tezpur to Dhekiajuli   |     | 6. Sylhet-Golapganj         | .. |                      |
|     | 7. Tangla to Orang  |     | 7. Sylhet-Petorganj         | .. |                      |
|     | 8. Tangla to Dalgaon  |     | 8. Golapganj-Thakurbari     | .. |                      |
|     |   |     | 9. Karimganj-Hatikira       | .. |                      |
|     |   |     | 10. Karimganj-Dullavehara   | .. |                      |
|     |   |     | 11. Maulvibazar-Kulaura     | .. |                      |
|     |   |     | 12. Maulavibazar-Manumukh.  | .. |                      |
|     |   |     | 14. Shamsheernagar-Kailasar | .. |                      |
|     |   |     | 15. Kamalganj-Kamalpur      | .. |                      |
|     |   |     | 16. Shaistaganj-Chunarighat | .. |                      |
|     |   |     | 17. Maulavibazar-Srimangal  | .. |                      |
- Sylhet district.

2. The development of motor transport in the province of Assam entirely depends upon the provision of roads suitable for carrying the traffic. It will be seen from the reply to question A-1 that there are a very large number of roads in this province which are at present unfit to carry motor traffic throughout the year ; the mileage roughly being over the whole province 8,817, of which only 560 miles are metalled. There is no doubt whatever but that if there were funds to construct and maintain motorable roads, the increase in the number of motor vehicles would be remarkable, not merely because of the convenience or acceleration of transport but because in this province it is very expensive for the ordinary cultivator to maintain carts and bullocks. The prices charged for transport by bullock carts are very high. For example, it was reported by the Deputy Commissioner of Nowgong regarding one road in his district that whereas in the cold weather the rate for carriage of goods along the Rupahi road was four annas per maund for a distance of seven miles, at the end of July it rose to eight annas a maund, and after that till the end of the rains the price rose to 12 annas or even Re. 1 a maund. To metal these seven miles of road was estimated to cost  $1\frac{1}{2}$  lakhs of rupees and the maintenance charges would probably be Rs. 15,000 a year. Actually at present during a considerable portion of the year when jute traffic is at its highest, this road to all intents and purposes is unserviceable. The detriment of the cultivation of jute caused by this state of affairs can well be imagined. To cite another example, North Lakhimpur is a sub-divisional headquarters in the district of Lakhimpur. There is neither railway nor metalled road in the sub-division, and the town's principal communication with the outside world is through Badutighat, 27 miles distant on the Subansiri river from which a feeder steamer connects with the main steamer services on the Brahmaputra. Hitherto goods have been carried in country boats up stream by a circuitous route from Badutighat to North Lakhimpur, the journey taking about a week ; whilst for passengers the only public conveyances have been bullock carts charging Rs. 12 for the journey and taking two days over it. Recently a motor service has been started and has proved a great convenience to the travelling public. The journey takes only three hours and the fare is Rs. 2-5-0. The road being unmetalled, the motor service must be closed during the rainy season. Such is the condition of most of our feeder roads to steamer ghats and railway stations.

It may therefore confidently be asserted that where a regular service of motor transport could be introduced, the cultivators would gladly take advantage of it.

It has however to be recognised that in Assam it would be at present impossible to increase either the revenue when the resettlement of a district is under consideration, or the local rates, to an extent which would provide the funds even for the maintenance of metalled roads.

3. *Provincial Taxation.*—Except in the Khasi Hills no special provincial taxation is imposed on motor transport in Assam beyond the registration fees for cars and driving licences and the annual registration of taxis and buses. On the

Gauhati-Shillong road, a fee of one lakh of rupees per annum is realised from the Commercial Carrying Company, Limited, on an agreement with Government for 10 years. A copy of the agreement\* is enclosed. In addition to the annual fee of Rs. 1,00,000 outside lorries are auctioned under clause 12 of the agreement. The total annual receipts on this account from the Commercial Carrying Company and the owners of outside lorries during the past five years were :—

						Rs.
1922-23	..	..	..	..	..	2,01,401
1923-24	..	..	..	..	..	1,92,460
1924-25	..	..	..	..	..	2,97,475
1925-26	..	..	..	..	..	2,23,300
1926-27	..	..	..	..	..	1,96,000

On the Cherra-Shillong road lorry licences are annually auctioned, and the receipts for the past five years were :—

						Rs.
1922-23	..	..	..	..	..	2,000
1923-24	..	..	..	..	..	2,500
1924-25	..	..	..	..	..	4,325
1925-26	..	..	..	..	..	5,150
1926-27	..	..	..	..	..	16,200

*Local Taxation.*—Municipal and local boards have power to levy licence fees on carriages (including motor vehicles) and carts using roads in their jurisdiction up to a maximum prescribed by Government for each kind of vehicle. The maximum scales prescribed are attached†. If the carriage or cart is also used within the jurisdiction of another local body the fees are liable to be shared between the various bodies (*vide* section 52-C of the Assam Local Self-Government Act as amended).

4. Hitherto taxation, whether provincial or local, on motor transport has not been specially allocated to expenditure on roads.

5. The Government of Assam are of opinion that any taxation of motor transport whether central, provincial, or local should be allocated to expenditure on roads. Actually in practice such allocation would be difficult to enforce. Assuming for instance that a local board derived Rs. 10,000 from licence fees on motor vehicles and from toll bars at bridges, unless it were compelled by audit to maintain its former standard of expenditure on roads and use this increase of revenue also for the same purpose, it is possible that the local board might consider that this increase in revenue would justify a decrease in the allotment for expenditure on roads as compared with that of the previous year in order to save money for medical relief or primary education. Yet it

\* Not printed.

† *Vide* copy of Notification No. 812-L.S.G. dated 7th November 1927, attached, in reply to question 9.



would appear fair that money obtained directly from the users of motor vehicles should be spent on the improvement of communications. In Assam, however, as stated in the answer to the next question, conditions are such that unless provincial revenues come to the rescue there is no hope of any improvement of the road system. In other words, in Assam it is not so much a question of allocating the income derived from motor vehicles to the improvement of roads as of a large increase in the provincial resources, which would probably have to be five or six times the amount of any revenue derived from taxation of motor transport. At the same time the Government of Assam would like to urge the view that the existing excise of four annas a gallon on petrol is in effect taxation on motor transport and should be allocated to expenditure on roads. They do not suppose that the Central Government could afford to sacrifice this source of revenue immediately, but they suggest that the principle should be accepted that the whole of the petrol tax should be spent on roads if and when the expansion of the other revenues of the Central Government allows them to forego their present income from the tax.

6. His Excellency in Council is of opinion that the following would be the most suitable forms of taxation for this province, under the three heads named :—

(a) *Central*.—The local Government would welcome the collection by the Central Government of an extra 4 annas per gallon on petrol, one half of which should remain with the Central Road Board, and the other be distributed to the various provinces to encourage the improvement of roads and perhaps to assist in the building of large bridges or any experimental construction. Possibly the division of this central fund might be regulated in accordance with the amount being spent on the construction of new metalled roads in any given province. The other 2 annas might be returned to the province according to the consumption of petrol. In this event there should be no further taxation of motor vehicles other than the fee for registration or, where such system exists, the price paid for permits to run. In the latter event there should be given to the permit holder a rebate calculated at 2 annas a gallon on the petrol he has used. It is necessary to point out that the distribution of the whole amount realised from the increased tax on petrol to the different provinces according to the petrol consumed would, so far as the province of Assam is concerned, postpone indefinitely any real development of the roads in the province. The enclosure to the letter from the Secretary to the Government of Bombay, Finance Department, No. 4740-A, dated the 16th of May 1927, shows that the approximate consumption of petrol in Assam is 950,000 gallons as compared with 6,820,896 gallons in Bombay and 5,678,320 in Bengal. The area of the province of Assam is about one-sixth smaller than that of Bengal. The revenue derived from a two annas tax per gallon of petrol will give Bengal over seven lakhs of rupees a year to spend on road development, while Assam would have to be content with about 1½ lakhs.



Again the cost of maintenance of metalled roads in Assam is estimated at about Rs. 2,000 per annum a mile. Assuming that the motor vehicles of all kinds likely to use the Assam roads averaged 15 miles to a gallon of petrol an average of over 600 car-trips a day over a given length of road would be required in order that the proceeds of an excise on petrol at two annas a gallon should pay for the maintenance of the road. This is far beyond anything that can be expected in Assam for many years. It is obvious therefore that unless either some other form of revenue is forthcoming or there is assistance from the central fund in aid of definite projects for development, many years must pass before the proceeds of any tax on petrol will be sufficient to give the province adequate means of communication. The Hon'ble Maulvi Mahammad Sadulla, M.A. B.L., Minister in charge of Education, is however personally opposed to the levy of an extra excise on petrol, as he thinks that any additional taxation will throttle the motor transport which is beginning to appear in this province.

(b) *Provincial*—Provincial taxation for the purposes of road development, if it takes any form of direct taxation, as for example an increase of the local rates to be devoted to expenditure on roads, has no chance whatever of acceptance by the Provincial Legislative Council. To indirect taxation there would not be the same local objection. For this reason the local Government, despite the condemnatory remarks of the Indian Taxation Enquiry Committee (paragraph 413) would welcome terminal taxes on all goods imported into or exported from the province subject to a limit of one anna a maund. It is true that this tax would be also levied on goods which would merely travel within the province. It is also possible that in some cases the tax might be paid on the same goods twice over. In any event the tax would be paid by persons who would derive immense benefit from any improvement in the roads. This tax would also provide the funds necessary for the maintenance of the roads. But the general principle involved is that the imperative need for metalled roads in Assam, with the enormous benefit to trade and to the development of the province generally which must follow, must far outweigh the difficulties and objections enumerated by the Taxation Enquiry Committee. In paragraph 418 of the Committee's report reference is made to the case of motor vehicles :—

“ These are used only on metalled roads and it would be perfectly practicable to levy, as in England, a provincial tax, and to make over the proceeds to a road board for distribution to the local bodies responsible for maintenance of the roads. Such a tax .....  
..... is recommended as a generally suitable method of securing money that is so urgently needed for the upkeep of the roads, at the same time saving the motorist from the annoyance of the toll gate ”.



(c) *Local*.—The Local Government share the dislike voiced by the Taxation Enquiry Committee to the establishment of toll bars, and as already stated there would be general opposition to any increase in local rates on a scale sufficient to provide the funds necessary even for the maintenance of metalled roads, assuming that these could be constructed. The total receipt during the year 1925-26 of local boards from local rates was Rs. 9,80,306. The expenditure on civil works was Rs. 14,07,000, of which Rs. 9,34,340 was spent on roads, Government grants contributing Rs. 6,22,607. The local boards in Assam have neither the funds nor the establishment for the construction and maintenance of roads suitable for motor traffic. Nor is any local board at present prepared or able to raise funds for the development of roads by increased local taxation.

7. The views of Government have already been stated in the answer to question 6. Distribution in proportion to consumption would condemn this province to a vicious circle under which the very limited receipts from an additional duty imposed on petrol would be insufficient to finance the improvement of the roads which is necessary to secure any appreciable increase in the number of vehicles using the roads and consuming petrol. Consumption must depend on the "number of motors" running on the roads and as this province has only at present been able to metal 560 miles out of a total mileage of the province of 8,817 miles, it follows that the number of motors in the province is very small. Until the road improvements can be financed, it cannot be expected that the number of motors will increase, and consequently the benefit to the province of an additional duty on petrol will be very small. An attempt to break into this vicious circle is now proposed to be made (*vide* reply to question A. 7), but for many years, on a basis of consumption, this province would derive little benefit.

8. It is considered that the most appropriate method of assessing motor vehicles would be in accordance with their weight. In the present condition of the roads of Assam it is most important that the light motor car and lorry should be encouraged.

9. The assessment of motor vehicles for the purpose of import duty must be a matter for the Central Government. As regards registration and other fees it would seem desirable that the local Government should limit the maximum taxation for these purposes. The Assam Municipal and Local Self-Government Acts lay down that the rates shall not exceed certain maxima fixed by the local Government. Copies of notifications prescribing these maxima are enclosed.

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NOTIFICATION NO. 6527-L.S.G., DATED THE 22ND DECEMBER 1925.

In exercise of the power conferred by section 296 (2) (x) of the Assam Municipal Act, 1923 (Assam Act I of 1923), the Government of Assam are pleased to prescribe the following fees as the maxima which may be levied by the Municipal Boards of Silchar, Sylhet, Habiganj, Karimganj, Sunamganj, Maulvi Bazar, Shillong, Dhubri, Goalpara, Gauhati, Barpeta, Tezpur, Nowgong,

Sibsagar and Golaghat on carriages under section 59, sub-section 1 (h) of the said Act :—

*Licence fees on carriages in the Silchar, Sylhet, Habiganj, Karimganj, Sunamganj, Maulvi Bazar, Shillong, Dhubri, Goalpara, Gauhati, Barpeta, Tezpur, Nowgong, Sibsagar and Golaghat Municipalities.*

	Rs. per annum.
For every motor cycle .. ..	12
For every motor car .. ..	30 (Rs. 60 per annum in the Shillong Municipality).
For every motor lorry or omnibus .. ..	100
For every four-wheeled carriage .. ..	18
For every two-wheeled carriage .. ..	10

The Municipal Boards may vary these rates as they please within these maxima for different kinds of carriages and motor vehicles.

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NOTIFICATION No. 6528-L.S.G., DATED THE 22ND DECEMBER 1925.

In exercise of the power conferred by section 296 (2) (x) of the Assam Municipal Act, 1923 (Assam Act I of 1923), the Government of Assam are pleased to prescribe the following fee as the maximum which may be levied by the Municipal Boards of Silchar, Sylhet, Habiganj, Karimganj, Sunamganj, Maulvi Bazar, Shillong, Dhubri, Goalpara, Gauhati, Barpeta, Tezpur, Nowgong, Sibsagar, Jorhat, Golaghat and Dibrugarh on carts under section 59, sub-section (1) (i) of the said Act :—

*Registration fee on carts in the Silchar, Sylhet, Habiganj, Karimganj, Sunamganj, Maulvi Bazar, Shillong, Dhubri, Goalpara, Gauhati, Barpeta, Tezpur, Nowgong, Sibsagar, Jorhat, Golaghat and Dibrugarh Municipalities.*

	Rs. per annum.
For every cart .. ..	10

The Municipal Boards may vary this rate as they please within the maximum for different kinds of carts.

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NOTIFICATION No. 812-L.S.G., DATED THE 7TH NOVEMBER 1927.

In exercise of the power conferred by section 89 (2) (XXXVIII b) of the Assam Local Self-Government Act, 1915 (Assam Act I of 1915), as subsequently amended, the Government of Assam are pleased to prescribe the following fees as the maxima which may be levied by the Silchar, Hailakandi, North Sylhet, Karimganj, South Sylhet, Habiganj, Sunamganj, Dhubri, Goalpara, Gauhati, Barpeta, Tezpur, Mangaldai, Nowgong, Sibsagar, Jorhat, Golaghat, Dibrugarh and North Lakhimpur Local Boards on carriages and carts under section 52-B of the said Act.

*Licence fees on carriages and carts within the local limits of jurisdiction of the Silchar, Hailakandi, North Sylhet, Karimganj, South Sylhet, Habiganj, Sunamganj, Dhubri, Goalpara, Gauhati, Barpeta, Tezpur, Mangaldai, Nowgong, Sibsagar, Jorhat, Golaghat, Dibrugarh, and North Lakhimpur Local Boards.*

Description of carriages and carts.	Half yearly fees.
1	2
	Rs.
1. Every four-wheeled carriage drawn by horses or ponies or by a horse or pony .. .. .	9
2. Every two-wheeled carriage drawn by a horse or pony ..	5
3. Every motor cycle .. .. .	6
4. Every motor car ordinarily used for the conveyance of human beings —	
(a) if carrying ordinarily not more than six persons ..	15
(b) if carrying ordinarily more than six persons ..	50
5. Every motor vehicle ordinarily used for the conveyance or haulage of goods .. .. .	50
6. Every cart .. .. .	5

The Local Boards may vary these rates as they please within these maxima for different kinds of carriages, motor vehicles and carts.

10. Section 52-C of the Assam Local Self-Government Act as amended and Sections 120 and 128 of the Assam Municipal Act as amended provide for reciprocal exemption.

As regards registration fees and driving licences, no change will be involved, as those granted in other provinces are valid in Assam.

11. The Government of Assam considers that revenue from taxation on motor transport should be credited to a separate fund.

The greatest asset to the engineer who is responsible for the efficient and economical improvements to the roads is the assurance of continuity in his work. Assuming that extra taxation is imposed whether as a tax on petrol or a terminal tax on goods or, as advocated by this Government, receipts are obtained from both sources, this revenue should be strictly earmarked for expenditure on roads and at least in the early days of construction should be credited to a separate fund. If any real improvement is to be effected in road communications, there should be a separate road development budget.

12. The question of amending the Devolution Rules seems to depend on the form which the Central Road Board will take. If certain national roads were to be selected and placed under the Central Board for maintenance and if the proceeds of the tax which still remained unutilized were to be allotted to the provincial Governments only for certain specified and approved works then roads would become to some considerable extent a central subject and the existing rules must be altered, but if the functions of the Road Board are to be merely advisory and the Board will merely make block grants to the provinces out of the proceeds of the special taxation then very little change seems to be required. Public works would still remain a provincial subject

and the assignments would be a source of provincial revenue under Rule 14(e) of the Devolution Rules. The attitude of this Government is that it would welcome the appointment of the Central Road Board as a co-ordinating and advisory body. Such a body would advise as to up to date methods and experiments and so on and would also decide how the imperial taxation was to be distributed.

It may be noted that public works in this province is a provincial subject but not a transferred subject.

13. The proceeds of a tax on petrol should preferably be spent on specific objects or credited to a separate road development budget. Regarding specific objects there are in Assam numerous important projects which would come under this head.

(b) The views of the Government have already been indicated in the reply to question B. 6.

14. In the province of Assam it would be undesirable to extend the principle of taxation for the purpose of road development to vehicular traffic other than motor transport but as already stated the Government of Assam considers that if possible provincial revenues should be increased by general indirect taxation for the purpose of road development.

15. There is no road cess in Assam. The revenue derived from local rates has to be used by the local boards not merely for the purpose of roads but for medical relief, education, veterinary, &c.

#### C.—ROAD BOARDS.

1. In 1926 the Legislative Council resolved to spend ten lakhs in the following year on road improvement, and a temporary *ad hoc* Road Board was constituted to advise Government as to the programme to be selected. Subsequently, in 1927-28, the Council resolved that a regular expenditure of five lakhs a year should be incurred on road improvement, and a Road Board was thereupon constituted on a permanent basis to advise Government on all matters relating to the improvement of road communications in the plains districts of the province. The enclosed copy of the notification constituting the Board will show its constitution and present membership. It has not yet functioned.

NOTIFICATION NO. 211-COM., DATED THE 1ST NOVEMBER 1927.

The Governor in Council is pleased to constitute for the life-time of the present Legislative Council of Assam a Road Board consisting of the following members to advise the Government on matters connected with the improvement of road communications in the plains districts of the province of Assam :-

- |  |    |                   |
|--|----|-------------------|
| (1) The Honourable Member, Finance                   | .. | <i>President.</i> |
| (2) The Honourable Minister of Local Self-Government | .. | } <i>Members.</i> |
| (3) The Chief Engineer, Assam                        | .. |                   |



- |   |   |
|---|---|
| (4) Srijut Taraprasad Chaliha, M.L.C. ..                    | } Members elected by the non-official members of Council other than planting members. |
| (5) Babu Gopendralal Das Chaudhuri, M.L.C.                  |   |
| (6) Maulvi Munawwarali, M.L.C. ..                           |   |
| (7) Srijut Kuladhar Chaliha, M.L.C. ..                      |   |
| (8) Khan Sahib Maulavi Muhammad Abdul Latif, M.B.E., M.L.C. |   |
| (9) Babu Brajendra Narayan Chaudhuri, M.L.C.                |   |
| (10) Lieut.-Colonel W. D. Smiles, D.S.O., C.I.E., M.L.C.    | Member nominated by the Assam Branch, Indian Tea Association.                         |
| (11) Mr. W. E. D. Cooper ..                                 | Member nominated by the Surma Valley Branch, Indian Tea Association.                  |

2. Yes.

3. The Central Road Board should contain representatives of all Governors' provinces, and its functions should be the co-ordination of road development in conjunction with railways, research in road construction and the distribution of any central taxation which may be allotted for the purpose. A non-official representative may also be selected from the Provincial Road Board.

All over the world good motoring roads are rapidly becoming as important as railways in their particular sphere. If any radical improvements in the road system of India are to be effected on an economical basis, the time has come when like railways, roads should have their own development budget. The most important function of the Central Road Board would then be the allocation of grants to provincial Governments.

4. This Government does not consider that there can be any satisfactory alternative to the formation of a Central Road Board.

#### D.—GENERAL.

There are no other points on which this Government desires to state their views.

## APPENDICES.



Class and source from which main- tainde.	1913-14.						1923-24.					
	Mileage and expenditure.						Mileage and expenditure.					
	Metalled.		Unmetalled.		Total mileage.	Total expenditure.	Metalled.		Unmetalled.		Total mileage.	Total expenditure.
	Mileage.	Expenditure.	Mileage.	Expenditure.			Mileage.	Expenditure.	Mileage.	Expenditure.		
1	2	3	4	5	6	7	8	9	10	11	12	13
Provincial (pro- vincial reve- nues).	386	Rs. 4,07,851	3,709	Rs. 6,77,981	4,095	Rs. 10,85,832	436	Rs. 7,11,423	3,536	Rs. 9,18,148	3,972	Rs. 16,29,571
		1,28,537		28,89,298		30,17,835		41,698		40,301		81,999
Imperial Military (central reve- nues).	14.32	..	3.79	..	18.11	7,699	6.67	..	.58	..	7.25	6,062
						450						..
Central Civil (cen- tral revenues).	..	..	..	..	..	..	..	..	289.22	..	289.22	98,455
						..						22,381
Local board [(lo- cal fund reve- nues).	Not recorded	separately.	..	..	4,602	4,21,155	114	51,297	4,808	4,71,378	4,922	5,22,675
						11,96,728		22,641		1,94,991		2,17,632

Top figures in 'expenditure' columns represent expenditure

## DIX I.

(vi) of the questionnaire.]

1924-25.						1925-26.							Re- marks.  26
Mileage and expenditure.						Mileage and expenditure.							
Metalled.		Unmetalled.		Total mileage. 18	Total expenditure. 19	Metalled.		Unmetalled.		Total mileage. 24	Total expenditure. 25		
Mileage. 14	Expenditure. 15	Mileage. 16	Expenditure. 17			Mileage. 20	Expenditure. 21	Mileage. 22	Expenditure. 23				
407	Rs. 6,76,119	3,338	Rs. 8,77,776	3,745	Rs. 15,53,895	411	Rs. 7,77,134	3,323	Rs. 8,08,112	3,734	Rs. 15,85,246		
	35,959		56,407		92,366		28,354		1,25,716		1,54,070		
5.07	..	5.88	..	10.95	5,326	3.87	..	5.80	..	9.67	4,236		
	..		..		..		..		..		..		
4.55	..	356.84	..	361.39	93,063	4.55	..	366.12	..	370.67	1,14,222		
	..		..		200		..		..		558		
145	63,393	5,073	4,99,861	5,218	5,63,254	143	62,666	5,180	5,49,373	5,323	6,12,039		
	29,330		2,38,109		2,67,439		30,154		2,92,147		3,22,301		

on maintenance and bottom figures that on construction.

M5RDC

## APPENDIX II.

[FORM REFERRED TO AT A. I (vi) OF THE QUESTIONNAIRE.]

ASSAM PROVINCE.

*Detail of expenditure on road maintenance/construction in 1926-27.*

Class.	Mileage to nearest ten.			Provincial expenditure Rs. 1,000's.			Local fund expenditure Rs. 1,000's.			Total expenditure Rs. 1,000's.	
	Sur- faced.	Unsur- faced.	Total.	Sur- faced.	Unsur- faced.	Total.	Sur- faced.	Unsur- faced.	Total.	Sur- faced.	Unsur- faced.
1	2	3	4	5	6	7	8	9	10	11	12
1. Provincial .. ..	400	3,270	3,670	776	924	1,700	..	..	..	776	924
				93	185	278	..	..	..	93	185
							<i>Central expenditure.</i>				98
				..	98	98	..	..	..	..	..
2. Central Civil .. ..	Below 5 miles.	370	375	..	8	8	..	..	..	..	8
							<i>Military expenditure.</i>				..
				6	..	6	..	..	..	6	..
3. Imperial Military .. ..	10 (above 5 miles).	..	10	..	..	..	..	..	..	..	..
				..	..	..	..	..	..	..	..
				..	..	..	85	547	632	85	547
4. Local board .. ..	160	5,540	5,700	..	..	..	36	362	398	36	362
				..	..	..	85	547	632	867	1,569
Total .. ..	575	9,180	9,755	93	1,022	1,804	36	362	398	129	555

APPENDIX II.—*contd.*

*The average cost of per mile per year of maintenance/per mile of construction (vide para. 3 of the note explaining the form of App. I to the questionnaire)*

	Assam valley.				Surma valley.				Remarks.	
	Metalled roads.		Unmetalled roads.		Metalled roads.		Unmetalled roads.			
	Cons- truction.	Mainte- nance.	Cons- truction.	Mainte- nance.	Cons- truction.	Mainte- nance.	Cons- truction.	Mainte- nance.		
Provincial (P. W. D.)	25,000*	1,800	12,000	600	25,000†	1,800	15,000	450	*Metalling .. Earthing up and bridging.	Rs. 20,000 5,000 <hr/> 25,000
Local board ..	25,000	380	4,390	110	13,000	680	500	80	†Metalling .. Earthing up and bridging.	15,000 10,000 <hr/> 25,000

*Note.*—The figures regarding construction of metalled roads represent cost of converting an existing unmetalled road into a metalled road.

## APPENDIX II.—concl.

Details of expenditure (estimated figures) on road maintenance/construction in 1927-28.

Class.	Mileage to nearest ten.			Provincial expenditure Rs. 1,000's.			Local fund expenditure Rs. 1,000's.			Total expenditure Rs. 1,000's.	
	Surfaced.	Unsur- faced.	Total.	Surfaced.	Unsur- faced.	Total.	Surfaced.	Unsur- faced.	Total.	Surfaced.	Unsur- faced.
1	2	3	4	5	6	7	8	9	10	11	12
1. Provincial ..	400	3,270	3,670	Separate figures not available.							
2. Central Civil ..	Below 5 miles.	370	370			1,800					
						9.08					
						1.33					
3. Local board ..	..	..	..								

# Replies to the questionnaire submitted by the Chief Commissioner, North-West Frontier Province.

## A.—ROAD DEVELOPMENT.

Roads in charge of District Boards in North-West Frontier Province.

1. The maps\* to the scale 1"=16 miles relating to the districts of Hazara, Kohat and Dera Ismail Khan are attached. Such maps are not available for Peshawar and Bannu districts and accordingly maps to the scale of 1"=4 miles for the former and 1"=8 miles for the latter are attached.

(i) Surfaced 23·395 miles.

Unsurfaced 1,861·065 miles.

(ii) *Vide* Statement A at Appendix.

(iii) *Vide* Statement B at Appendix.

(iv) District Boards.

(v) All the roads are maintained by the District Boards from district funds.

(vi) *Vide* Statement C at Appendix.

(vii) *Vide* Statement D at Appendix.

	<i>Surfaced.</i>	<i>Unsurfaced.</i>
2. (i) (a)	·17	14·08
(b)	1·02	82·6
(c)	1·2	.. .

3. (a) (ii) *Vide* Statements E and F at Appendix.

(b) (iii) 5 pies per head of rural population.

4. No road traffic statistics are maintained in this province which definitely indicate the number of motor omnibuses or taxicabs plying on particular routes.

All motor vehicles other than vehicles belonging to the Army Department or Royal Air Force, or vehicles which enter the province after registration in another province, have to be registered in Inspector General of Police's office—*vide* Statement 'G.'\* When the ownership of a motor vehicle changes hands the fact has to be notified. On the other hand when a car becomes unfit for use or is destroyed, or when the owner takes his car out of the province the fact is not notified. Nor is any intimation given when a motor vehicle registered in another province enters the province, as fresh registration is not demanded. Thus the actual number of motor vehicles in use in the province at any particular time is never accurately known.

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\*Not printed.

Improvement in regard to these statistics therefore could be attained by requiring, that

- (i) when a motor vehicle is past use, or is destroyed, and the registration number consequently is no longer required for that vehicle the fact should be notified by the owner,
- (ii) all motor vehicles taken out of a province in which they have been registered, for a period exceeding three months, must be registered afresh on entry into another province, such re-registration being made free of charge. On receiving a registration certificate and number in the new province the original papers of registration should be surrendered by the owner and should be returned through the office of registration to the office in which the vehicle was originally registered.

In addition to the statistics thus maintained every Superintendent of Police maintains particulars of all motor vehicles licensed to ply for hire within the limits of his district—*vide* Statement 'H'.\*

6. The main defect of the existing motor roads is lack of bridges. This cannot be remedied unless funds are granted by the Government.

7. (a) Roads should be metalled and bridged.

(b) They must be financed by Government as District Board sources are inadequate.

(c) Construction of roads and bridges by means of loans is not possible unless the roads are metalled and there is a considerable increase in the volume of motor traffic to provide increased income to meet the repayment of loans.

8. The development of roads will of necessity augment the income of railways by facilitating the transport of goods to the nearest railway stations. The Railway Board have agreed to co-operate with the local Governments by furnishing the following information each year :—

- (i) A note on the new railway lines provided in the quinquennial programmes.
- (ii) A graph showing the proposed expenditure during the quinquennial period, and
- (iii) A map of the railways in the province which will show all new railway construction and surveys.

#### **B.—MOTOR TRANSPORT AND MOTOR TAXATION.**

1. Statements 'I' and 'J' at Appendix show the extent to which motor transport has increased in the North-West Frontier Province since the 1st September, 1915, when registration of motor vehicles was first undertaken under the provisions of the Motor Vehicles Act, 1914. The information contained in Statement 'I' is practically complete as road certificates are usually granted to those vehicles which are registered in this province, but the statistics contained in Statement 'J' only relate to vehicles in respect of which registration has been carried out in Inspector General of Police's office and to which F. P. numbers have been allotted. A large number of private cars and motor



cycles which have been registered in other provinces are in use in the North-West Frontier Province and carry the numbers allotted in other provinces.

The majority of motor lorries plying for hire in this province may be regarded as falling within the category of light omnibuses. No vehicles have been registered exclusively for use in connection with the transport of commercial goods. In all districts lorries carry a certain amount of freight.

As regards the prospects of further development, there is likely to be a substantial increase in the volume of motor transport especially as there are no direct railways connecting the headquarters of the 4 trans-Indus districts in this province and consequently no competition exists between railways and motor transport on the main roads running north and south. Nor are there any railways operating in the Kurram and Tochi valleys. Even where railways exist there is an ever-increasing stream of motor traffic on the adjoining roads.

3. Tolls on bridges are levied in districts.

4. Income from taxation is not allocated to expenditure on roads.

5. It is considered that all taxation on motor transport whether central; provincial or local, should be expended on the upkeep of roads.

6. (a) Import duty *ad valorem*.

(b) Petrol duty, and fees for registration, and licences to drive.

(c) Local taxation to be limited to licences to ply for hire and tolls on bridges.

7. No additional local taxation is required but if this is considered to be necessary it should be provincial and undoubtedly the fairest form of taxation is that on petrol consumption. The price of petrol in north of India is much higher than in Bombay and for this reason the burden of 4 annas increase will be felt far more heavily in this part of the country than in Bombay. It is suggested that the proportion of the central tax collected on petrol should be decreased proportionately up country and increased proportionately down country in order to compensate for the increased cost of petrol up country.

8. (a) *Ad valorem*.

(b) If petrol duty is adopted, registration fees should be the same for all motor vehicles throughout India and should be levied only to cover the cost involved in registration.

9. It is advisable to limit the maximum taxation but it should be left to the discretion of the local Governments and it should not be open to local bodies to impose additional taxation.

10. Motor vehicles are not subject to taxation in this province. The only fees levied are for initial registration at the following rates :—

					Rs.
Motor cars and lorries	..	--	--	..	16
Motor cycles	..	--	--	..	4

Motor vehicles plying for hire are taxed annually at the following rates :—

Cars or lorries exceeding 2 tons in weight—

	Rs.
Unladen .. .. .	30
Below this weight .. .. .	10

Motor vehicles plying beyond the limits of one district are charged additional fees at half rates, for each district which they enter.

The annual tax for driving licences is—

	Rs.
Professional licences ( <i>i.e.</i> , drivers of vehicles plying for hire)	3
Non-professional .. .. .	2

It is not desirable to arrange for reciprocal exemptions of provincial and local taxations on motor vehicles but an endorsement might be given valid for other districts on reduced fees as is now done in this province. Besides if increased taxation is to fall on petrol only, the necessity would not arise.

11. Yes. It should be credited to a separate fund. This would greatly simplify its utilisation as the money would always be available instead of having to be provided in the budget.

13. (a) The revenue from central taxation might be allotted in the form of block grants to provincial Governments.

(b) Revenue from central taxation should be allocated according to the demand for maintenance and construction of roads.

14. Motor transport alone should be taxed. Taxation imposed on other forms of vehicular traffic will have to be borne ultimately for the most part by the agricultural population, and they suffer severely from the presence of motor transport. Moreover, motor traffic alone is likely to compete in increasing degree with the railways.

#### C.—ROAD BOARDS.

1. Yes. It was formed at the end of 1919.

The following are the members of the Board :—

- (1) Revenue Commissioner, North-West Frontier Province (President).
- (2) Secretary, Public Works Department, North-West Frontier Province.
- (3) Inspector-General of Police, North-West Frontier Province.
- (4) Inspecting Officer, Frontier Corps.
- (5) Commandant, Frontier Constabulary.

Its functions are :—

(a) To lay down the order of urgency of all provincial road proposals and classify them on the following lines :—

(i) Metalled roads : 1st Class 16' width of metal.

(ii) „ „ 2nd Class 12' width of metal.

(iii) „ „ 3rd Class 9' width of metal.

(iv) Unmetalled roads.

(b) To make recommendations to the Chief Commissioner as to which roads should be surveyed, estimated for and included in the next Public Works Department budget.

(c) To reduce to the minimum the chance of one district being favoured at the expense of others and of roads being built to an unsuitable specification.

(d) To approach the Government of India for increased grants for the Public Works Department budget, when required.

Five formal Board meetings have so far been held.

The Board has proved useful. On various important road projects there has been extensive informal discussion between the members.

2. Yes. The Central Road Board, if formed, will be a welcome organization so far as the North-West Frontier Province is concerned.

3. Central Road Board is, in my opinion, desirable. I have no suggestions to offer as regards details of its constitution and functions.

#### D.—GENERAL.

There is a lack of good communications in some parts of the province, where improved roads and transport facilities are urgently required.

## APPENDIX.

## STATEMENT A.

(Vide question A-1 (ii) of the questionnaire.)

*Statement showing the existing bridges in the North-West Frontier Province.*

## HAZARA.

1. 40' span wooden bridge over Jalol Nullah on the Garhi Habibullah-Kohala road.

2. 20' span arched bridge over Khanpur Nullah on the Haripur-Khanpur road.

## PESHAWAR.

3. Bridge over the Bara.

4. Bridge over Joi Shaikh.

5. Bridge over the Bara Channel.

6. Bridge over the outfall drainage of Cantonment.

7. Bridge over the Kabul River Canal.

8. Bridge over the Joe Shaikh.

9. Bridge over Budni.

10. Bridge over the Bara Channel near Swabi.

11. Bridge over the L. S. C. Rajbehas.

12. Bridge over Murdara Nullah.

13. Bridge over Joe Zardad.

14. Bridge over Joi Shaikh near Darbangi.

15. Bridge over the Budni near Kandar Khel.

16. 3 bridges over the Jabba Drains.

17. Syphon Bridge over the Kabul River Canal.

18. Bridge of 2 spans near Bhatian.

19. Bridge over Sira Nullah near Choli.

20. 2 bridges over the Hazara Khani Canal.

21. Bridge over the Kabul River Canal.

22. Bridge over the Bara Channel.

23. Bridge over the Bara Channel.

24. Narrow Bridge over the Hazara Khani Canal.

25. Bridge over Bara Channel near flour mill of L. Sarab Dial.

26. Bridge over the Jabba Drain.

27. Bridge over Bara Channel.

28. Bridge over the Kabul River Canal.

29. Bridge over the Katha of Tahkal.

30. Bridge over the Dry Bara.

31. Bridge over Kabul River Canal.

32. Bridge over Joe Shaikh.

33. Bridge over Budni.

34. Bridge over Khubi Katha.

35. Bridge over Katiala near Batgram.

36. Bridge over Irab near Kharakhi.
37. Bridge over Irab near Parang.
38. Bridge over Dab Nullah Nisatta.
39. Bridge over Bubak Nullah near Torlandi.
40. Bridge over Irab near Abaizai.
41. Bridge over Swat River Canal Rajbaha.
42. Bridge over Canal Rajbaha.
43. Bridge over Canal Rajbaha.
44. Bridge over Khawar near Baitul-garib.
45. Bridge over Ziam Nullah near Khulerzai and 2 bridges over Irab.
46. Bridge over Irab near Pashoongri.
47. Bridge over Ziam Nullah.
48. Bridge over Canal Rajbaha.
49. Bridge over Bandi Nullah.
50. Bridge over Irab near Muhib Banda.
51. Bridge over Budkor Nullah.
52. Bridge over Dhobian Canal Branch.
53. Bridge over Rajbaha near Dagi.
54. Bridge near Khunda.
55. Bridge over Tut Killi.
56. Bridge over Canal.
57. 2 bridges over Canal.
58. 1 bridge over Chicher Nullah.
59. Bridge over outfall drain.
60. Bridge over Rajbaha.
61. Bridge over Dargai Nullah.
62. Bridge over Irab.
63. Bridge over Joe Sheikh.
64. Bridge over Dry Bara.
65. Culvert over Palosi Katha.
66. Irish Bridge in Maryamzai Khawar.
67. Irish Bridge in Hissara.
68. Bridge over Rajbaha.
69. Bridge over Rajbaha.
70. Irish Bridge in Aza Khel Khawar.
71. Bridge over Hissara Kanda.
72. Bridge over Irrigation Katha.
73. Irish Bridge near Darwazgai.
74. Irish Bridge near Mandorri.
75. Bridge over Gulbela Katha.
76. Bridge over Khathila near Zira Mian Killa.

77. Bridge over Irab near Sarwani.
78. Bridge near Zira Mian.
79. Bridge near Turlandi.
80. Bridge near Missribanda.

---

#### STATEMENT B.

(Vide question A-1 (iii) of the questionnaire.)

*Statement showing the places where new bridges are required in the North-West Frontier Province.*

##### HAZARA.

1. Over Siran river near Sacha on the Sacha Battal Road.
2. Over Siran river near Baffa on the Inaitabad-Baffa Road.
3. Over a nullah near Tarangri on the Shinkhari-Khaki Road.
4. Over Haro Nullah near Mari on the Qabr Khota-Gharagali Road.

##### DERA ISMAIL KHAN.

5. Kulachi to Rori.
6. Kulachi to Daraban.
7. Hathala to Takwara.
8. Chudwan to Gandi Umar Khan.
9. Tank to Rori.

##### PESHAWAR.

10. Bridge or an Irish bridge over the Jabba drain near Patwari Killa.
11. On flour mill channel. Irish bridges on Jindi Urmar Miana and Urmar Payan Khawars from Phandu to Jaloza Road.
12. Bridge over the Budni, Laram-Darhangi Road.
13. Near Kafurdheri over Mathra-Kafurdheri Road.
14. Over the water channels, Nagoman Boat bridge to Michni Fort.
15. Over some places near Pir Pai.
16. 4 or 5 culverts on Peshawar-Sadar Garhi Road.
17. 3 or 4 culverts on Hazar Khani to Phandu Road.
18. Over Bara on Peshawar to Hazar Khani and Musazai Sorazai Road.
19. Irish bridge near Jula Talao.
20. Over Bara on Peshawar to Chamkani Road.
21. Irish culverts on Abdara Sangoo Road.
22. Irish bridges and culverts at few places on Kafurdheri Hindu Kassi Road.
23. 2 or 3 culverts on Badber to Bara Fort via Mashokhel Road.
24. Irish culverts on Landi to Bara Band Road.
25. One bridge and 4 or 5 culverts on Nowshera to Charsadda and Tangi to Abazai.
26. Culverts on Utmanzai to Dargai Road.
27. Culverts on Kangra to Shankargarh Road.
28. Culverts on the bridge near Khan Mahi.

29. Bridge over the Bara on Taru-Akbarpura Road.
30. 2 Irish bridges on Nowshera-Ziarat Kaka Sahib Road.
31. Over Zindi Nullah in Maneri limit.
32. Culverts on Tordher to Kund Ferry Road.
33. Culverts on Lahore to Tordher Ferry Road.
34. Culverts on Ambar to Lahore Ferry Road.
35. Irish bridges in Khawar and 2 or 3 bridges on Lahore Ferry to Topi and then from Khawar of Topi near Kotha to Ambar Road.
36. 8 or 9 bridges and an Irish bridge in Mekam Nullah on Shahbaz Garhi Road to Rustam *via* Gujrat Road.
37. 4 or 5 culverts and an Irish bridge in Kalpani.
38. Irish bridge in Kalpani on Hoti to Mayar and Toru Road.
39. Culverts and Irish bridge on Gujar Garhi to Jalala Road.
40. Irish bridge and culverts on Lahore to Swabi Road.
41. Irish bridge in Palosi Khawar.
42. Irish bridge in Saibubi near Mulla Zai.
43. Irish bridge in Panj Katha.
44. Irish bridge near Adezai.
45. Irish bridge and one or two culverts on Jhando Road.
46. Irish bridge in Mukam Nullah.
47. 2 Irish bridges and 1 bridge on Darwazgai to Mandori.
48. Culverts on Negoman boat bridge to Nahakki and Kharakki *via* Dab and Sarwni Road.
49. Culverts on Tangi to Shankargarh Road.
50. Culverts on Khanmahi and Nisatta *via* Dargai.

### STATEMENT C.

(*Vide* question A-1 (vi) of the questionnaire.)

*Statement showing the expenditure on District Board roads in the North-West Frontier Province.*

Year.	DISTRICTS IN THE NORTH-WEST FRONTIER PROVINCE.					
	Hazara.	Peshawar.	Kohat.	Bannu.	Dera Ismail Khan.	Total N. W. F. Province.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1913-14 ..	7,534	16,920	4,705	1,273	4,228	34,660
1923-24 ..	4,064	19,611	427	3,546	3,097	30,745
1924-25 ..	4,973	30,669	1,912	8,007	4,605	50,166
1925-26 ..	5,181	28,146	2,893	11,349	2,914	50,483



## STATEMENT D.

(Form referred to at A-1 (vii) of the questionnaire).

*Detail of expenditure on road (maintenance) in 1926-27.*

Class.	Mileage to nearest ten.			Provincial expenditure Rs. 1,000's.			Local fund expenditure Rs. 1,000's.			Total expenditure Rs. 1,000's.		
	Surfaced.	Un-surfaced.	Total.	Surfaced.	Un-surfaced.	Total.	Surfaced.	Un-surfaced.	Total.	Surfaced.	Un-surfaced.	Total.
1	2	3	4	5	6	7	8	9	10	11	12	13
District Board roads.	23·395	1,861·065	1,884·46	Rs. ..	Rs. ..	Rs. ..	Rs. ..	Rs. 53	Rs. 53	Rs. ..	Rs. 53	Rs. 53

STATEMENT D —concl'd.  
Detail of expenditure on road (construction) in 1926-27.

Class.	Mileage to nearest ten.			Provincial expenditure Rs. 1,000's.			Local fund expenditure Rs. 1,000's.			Total expenditure. Rs. 1,000's.		
	Surfaced.	Un-surfaced.	Total.	Surfaced.	Un-surfaced.	Total.	Surfaced.	Un-surfaced.	Total.	Surfaced.	Un-surfaced.	Total.
1.	2	3	4	5	6	7	8	9	10	11	12	13
District Board roads.	..	..	..	Rs. ...	Rs. ..	Rs. ..	Rs. ...	Rs. ..	Rs. 2	Rs. ..	Rs. ..	Rs. 2

## STATEMENT E.

(Vide question No. A-3 (a) (ii) of the questionnaire.)

Statement showing the income of the District Boards, North-West Frontier Province, during the last three years (1924-25, 1925-26 and 1926-27.)

Year.	Government grants for					Municipal and local contributions for			Income from District Board sources only.	Total income from all sources.
	Education.	Medical.	Miscellaneous.	Public Works.		Education.	Medical.	Civil Works.		
1	2	3	4	5		6	7	8	9	10
	Rs.	Rs.	Rs.	Rs.		Rs.	Rs.	Rs.	Rs.	Rs.
1924-25	5,13,112	46,038	22,721	48,341		8,777	4,472	10,104	3,47,613	10,01,178
1925-26	5,50,206	39,460	..	22,567		5,521	3,224	4,803	4,19,207	10,44,988
1926-27	6,59,750	39,760	21,238	55,707		4,501	4,135	1,839	4,16,999	12,03,929
Total	17,23,068	1,25,258	43,959	1,26,615		18,799	11,831	16,746	11,83,819	32,50,095
Average	5,74,356	41,752	14,653	42,205		6,266	3,943	5,582	3,94,608	10,83,365

*Statement showing the expenditure on District Board roads in the North-West Frontier Province for three years 1924-25, 1925-26 and 1926-27.*

							Rs.
1924-25	..	..	..	..	..	..	50,166
1925-26	..	..	..	..	..	..	50,483
1926-27	..	..	..	..	..	..	55,457
					Total	..	1,56,106
					Average	..	52,035

## STATEMENT I.

(Vide question No. B.-1 of the questionnaire).

Statement showing Road Certificates by Superintendents of Police issued during each year since the introduction of the motor vehicles plying for hire Rules (1924.)

District.	1924.			1925.			1926.			1927.			REMARKS.
	Cars.	Lorries.	Total.	Cars.	Lorries.	Total.	Cars.	Lorries.	Total.	Cars.	Lorries.	Total.	
Kohat ..	..	..	..	20	10	30	21	10	31	21	11	32	Routes.—Kohat to Peshawar, Lachi, Bannu, Thal, Parachinar.
Hazara ..	30	16	46	46	27	73	58	39	97	43	79	122	Traffic statistics.—Not available.
													Routes.—Abbottabad to Haripur via Havelian.
													Abbottabad to Thai, Dhamtaur via Nawanshehr.
													Abbottabad to Shinkiani and Garhi via Mansehra.
													Traffic statistics.—Not available.
Bannu ..	38	37	75	86	92	178	89	83	172	109	134	243	Routes.—Bannu-Dera Ismail Khan, Kohat, Miranshah, Razmak.
													Traffic statistics.—Dera Ismail Khan, 10 to 15 passengers, Kohat 20, Miranshah Razmak 50 to 60.
D. I. Khan ..	40	18	58	67	28	95	80	41	121	89	60	149	Routes.—Dera Ismail Khan to Bannu, Tank, Kulachi via Hathala, Paharpur and Tank to Ghazni Khel, Bannu, Mullazai.

Peshawar	Tank to Jandola, Murtaza.											
	In winter: Dera Ismail Khan to Paroa, Daraba, Chaudwan and Darya Khan.											
	Traffic statistics.---Not available.											
	Routes.—Peshawar to Kabul, Kohat, Landikotal, Pabbi and Charsadda.											
Total	Pabbi to Cherat.											
	Traffic statistics.---Not available.											
	44	50	94	67	112	179	56	155	211	68	185	253
	152	121	273	286	269	555	304	328	632	330	469	799

NOTE.—Yearly figures are not progressive.

## STATEMENT J.

(Vide question No. B-1 of the questionnaire.)

*List showing number of motor vehicles registered in the office of the Inspector General of Police, North-West Frontier Province, 1915-27.*

Motor vehicles.		1-9-1915 to 31-12-1915	1916.	1917.	1918.	1919.	1920.	1921.	1922.	1923.	1924.	1925.	1926.	1927.
Private cars	..	35	115	156	34	31	183	100	65	83	104	153	179	239
Taxi cabs	..	..	28	7	4	18	85	27	12	55	87	91	60	32
Motor cycles	..	9	67	92	88	72	182	128	55	62	60	66	91	74
Buses (lorries)	..	..	..	..	3	2	18	21	43	56	177	186	140	175
Total	..	44	210	255	129	123	468	276	175	256	428	496	470	520

NOTE.—Totals are not progressive.



# **Replies to the questionnaire submitted by the Hon'ble the Agent to the Governor General and Chief Commissioner, Baluchistan.**

## **A.—ROAD DEVELOPMENT.**

1. Requisite map\* is enclosed.
  - (i) Statement giving requisite information is enclosed (Statement I at Appendix).
  - (ii) and (iii) No important bridges exist and the only one required is at Nari.
  - (iv) Map\* shows.
  - (v) Civil Works Central—Non-Voted and Military.
  - (vi) Statement giving requisite information is enclosed (Statement II at Appendix).
  - (vii) The details of expenditure during 1926-27 are given in the form (Statement III at Appendix).
2. A statement giving requisite information is enclosed (Statement IV at Appendix).
3. There are no provincial revenues or local funds.
4. No road traffic statistics are maintained nor are they necessary. The traffic on roads is very small, due to the population being agricultural and depending principally upon camel transport.
5. Co-ordination in the road system is obtained through the Secretary, Public Works Department, who is also the Military Chief Engineer. There is no co-ordination with the adjoining provinces, *i.e.*, Sind, Punjab, and North-West Frontier Province.
6. The existing road system consists for the main part of unmetalled roads in indifferent condition for motor transport. They can only be improved by the increase in annual expenditure on maintenance.
7. (a) A certain development of roads in the near future is necessary for military reasons. Some minor developments are needed for civil purposes and it is desirable to link up with the neighbouring provinces.
  - (b) All road development in this province must be financed from civil funds, central or military funds.
8. Road development will not affect railways
9. (a) No need has so far arisen to consult the Test House at Alipore.
  - (b) Since most of the roads are unsurfaced no experiment or research has been carried out in respect of improved methods.

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\* Not printed.

(c) No information has been obtained of the methods obtaining in other provinces: it is observed that natural conditions are peculiar in Baluchistan.

(d) The co-ordination and dissemination of knowledge gained by experiment and research must always be useful.

### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

*Preamble.*—First of all it may be pointed out that Baluchistan is a desert province on the frontier where, owing to the nature of the country and the scattered population, communications of a motorable kind are few and far between. The province possesses only one town of any size, *viz.*, Quetta, the number of vehicles in which are inconsiderable. It follows therefore that for the present the interest of this administration, in the matter, is more academic than practical.

1. Motor transport in Baluchistan has nearly trebled since 1923-24. The figures of registration are given below :—

Year.	Private cars.	Motor buses.	Taxis.	Commercial goods vehicles.	Motor cycles.
1923-24 . . . .	68	...	...	6	27
1924-25 . . . .	71	...	...	9	34
1925-26 . . . .	107	1	...	5	63
1926-27 . . . .	146	2	...	39	28

All motor lorries have been classed as commercial goods vehicles. A few of them are fitted to carry passengers also but no separate record is maintained for them.

2. The prospects of further development are good but likely to be slow on account of the nature of the country and the paucity and poverty of its inhabitants.

3 and 4. No special taxes are levied in Baluchistan.

5. In the opinion of this administration the whole of the taxation on motor transport should be allocated to expenditure on roads. The number of motor vehicles in Baluchistan are however practically negligible, the revenue derived would be but a drop in the ocean.

6. No opinion can be offered for reasons given in paragraph 5 just above.

7. The Agent to the Governor-General supports the proposal of the Bombay Government that an additional duty should be imposed on petrol and the proceeds distributed to the provinces.

8. Registration and driving licence fees are at present assessed as follows in this province and these are considered to be suitable :—

<i>Registration fees.</i>		Rs.
Motor cycle . . . . .		4
Motor vehicles of two tons and under . . . . .		10
Motor vehicles over two tons . . . . .		20

<i>Driving licence fees.</i>		Rs.
Motor cycle . . . . .		4 per annum.
Motor car . . . . .		8 „

Half fee for renewal if renewed before the expiry of 12 months otherwise full fees.

Any other fee if charged should, in the opinion of the Agent to the Governor General, be *ad valorem*.

9. It would be difficult and certainly undesirable to limit the maximum taxation.

10. Registration fee is not at present charged on vehicles registered in other provinces or States, provided registration certificates are produced and this seems to meet the requirements of this province.

11. In the opinion of this administration revenue from taxation on motor transport should be credited to a separate fund for expenditure on roads only.

12. This does not concern Baluchistan which is wholly central.

13. (a) The revenue from central taxation should be distributed in the form of block grants to provincial Governments.

(b) The allocation should be in proportion to provincial expenditure on roads.

14. Vehicular traffic other than motor transport in this province plies within the limits of the municipalities only and is taxed by them.

15. No road cess is levied in this province.

#### C.—ROAD BOARDS.

1. There is no Road Board in the province : its formation is contemplated from the 1st April 1928. It will consist of the Secretary, Public Works Department ; and Chief Engineer, Western Command, as President ; with two members, *viz.*, the Revenue and Judicial Commissioner and the Colonel-on-the-Staff, General Staff, Western Command.

2. A Central Road Board would be useful in co-ordinating the road systems between provinces as well as technical information and research.

3. This province is unable to advise regarding the constitution of the Central Road Board. Its functions would presumably be advisory as

regards the allocation of funds from central revenues and the construction of the main arterial roads throughout India.

4. Co-ordination could of course be obtained by establishing a close liaison with the Road Boards of neighbouring provinces, but undoubtedly better results would be obtained by a Central Road Board.

#### D.—GENERAL.

This province has no further views to urge. It is a very sparsely populated province and the rural population are in a backward state of development due to the lack of water for irrigation. Road development can only proceed slowly : irrigation is a far more burning problem.

### APPENDIX.

#### STATEMENT I.

*Mileage of roads of different classes and types (vide question A-1(i) of questionnaire).*

Class.	Metalled Roads.	Unmetalled Roads.	Total (2 and 3).	
1	2	3	4	
Civil (Central)	(A) 109·06	(B) 923·54	1,032·60	(A) Inside Station 15·97 Outside „ 93·09
Military	(C) 150·89	(D) 144·54	295·43	(B) Outside Station.  (C) Inside Cantonment 53·34 Outside „ 97·55
TOTAL	259·95	1,068·08	1,328·03	(D) Inside Cantonment 1·79 Outside „ 142·75

## STATEMENT II.

*Total Mileage by types and total expenditure on construction and maintenance on all roads and from various sources in the years 1913-14 and 1923-24 to 1925-26 inclusive (vide question A-1 (vi) of questionnaire).*

Total Mileage, all types . . . . . 1,328.03

## Expenditure on construction and maintenance.

## 1913-14.

Military . . . . . Figures not available as accounts have since been destroyed.

Civil . . . . . 1,75,740

1,75,740 (Exclusive of expenditure on military roads from military funds.)

## 1923-24.

Military . . . . . 2,31,379

Civil . . . . . 2,44,140

4,95,519

## 1924-25.

Military . . . . . 2,87,651

Civil . . . . . 3,21,135

6,08,786

## 1925-26.

Military . . . . . 2,44,809

Civil . . . . . 3,10,230

5,55,039

**STATEMENT III.**  
**Form referred to at A-1 (vii) of questionnaire.**  
**BALUCHISTAN PROVINCE.**

*Details of expenditure on road maintenance/construction in 1926-27.*

Class.	Mileage to nearest ten.			Military expenditure Rs. 1,000's			Civil central fund expenditure Rs. 1,000's.			Total ex- penditure Rs. 1000's.		
	Surfaced.	Unsurfaced.	Total.	Surfaced.	Unsurfaced.	Total.	Surfaced.	Unsurfaced.	Total.	Surfaced.	Unsurfaced.	
1	2	3	4	5	6	7	8	9	10	11	12	13
Military	150.89	144.54	295.43	(Information not available.)	(Information not available.)	276	...	...	...	(276)	...	Average cost per mile per year of maintenance is:— Baluchistan District. Surfaced . . . 441—1417 Unsurfaced . . . 232 Zhab. Surfaced . . . 1102—1492 Unsurfaced . . . 1100 Information regarding average cost per mile of construction is not available. Average cost per mile per year of maintenance is:— Baluchistan District. Surfaced . . . 20—1000 Unsurfaced . . . 100—500 Zhab. Surfaced . . . 176—325 Unsurfaced . . . 111—430 Information regarding average cost per mile of construction is not available.
Civil (Central).	109.06	923.54	1,032.60	...	...	...	(Information not available.)	...	337	(337)	...	
									18.5	18.5		
TOTAL	259.95	1,068.08	1,328.03	...	...	276	...	...	337	613	...	
						...			18.5	18.5		

NOTE.—The expenditure on road maintenance (military and civil) and on road construction (civil in 1927-28 is not likely to differ substantially from that of 1926-27. However an expenditure of Rs. 2 lakhs is expected on road construction (military, in 1927-28.

### STATEMENT IV.

*Information required by question A-2 of questionnaire.*

Total area	46,960	Sq. miles.
Total population	3,83,624	
Rural population	2,81,135	

The present total mileage of roads :—

	Miles.
(a) Per 100 sq miles of area—	
Surfaced . . . . .	·55
Unsurfaced . . . . .	2·27
(b) Per 1,00,000 of total population—	
Surfaced . . . . .	67·77
Unsurfaced . . . . .	278·40
(c) Per 1,00,000 of rural population—	
Surfaced . . . . .	92·48
Unsurfaced . . . . .	379·88



## Replies to the questionnaire submitted by the Hon'ble the Agent to the Governor General, Rajputana, and Chief Commissioner, Ajmer-Merwara.

### A.—ROAD DEVELOPMENT.

1. Maps\* showing the principal roads in (i) Rajputana, and (ii) Ajmer-Merwara, are enclosed. (Scale 16 miles = 1 inch.)

*Description* —The Rajputana Province comprises 19 Indian† States, and the British district of Ajmer-Merwara. The total area of Rajputana and Ajmer-Merwara is 131,769 square miles and the total population is 10,669,738. In accordance with the instructions conveyed by the Government of India, Department of Commerce, the Indian States in Rajputana have not been approached in regard to the subject matter of this questionnaire, and the information furnished in the subsequent paragraphs relates to the British districts of Ajmer-Merwara and Mount Abu only and to roads in charge of the Public Works Department, Rajputana, except where it is specially stated otherwise.

The principal roads in Rajputana and Ajmer-Merwara worth mentioning are :

#### (i) *Jodhpur-Sendra-Ajmer-Jaipur-Bharatpur-Agra Road.*

This road is generally fit for motor traffic except at the Banganga river crossing in Bharatpur territory. The road from Jodhpur to Sendra *via* Pali is metalled, but owing to the presence of 7 large river beds including the Luni, which are unbridged, it is passable for motors only in the dry weather. From Sendra to Ajmer and Jaipur *via* Kishengarh the road is passable throughout the year. Between Kishengarh and Jaipur there are Irish bridges over a few nullahs, which stop the traffic for a few hours when the nullahs flow over these bridges in the rains. From the Jaipur border to Bharatpur border, 128 miles, the road is in a bad state, and motors can get along only with difficulty even in the cold weather. From Bharatpur border upto 22 miles the road is an unmetalled fair weather road and is *not* passable for motors, especially in the monsoon, as it passes through the sandy soil of the Banganga Valley. The remaining portion of the road *via*

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\* Not printed.

Bharatpur upto Agra is metalled and fully bridged and fit for motor traffic throughout the year.

(ii) *Ajmer-Nasirabad-Deoli-Bundi-Kotah-Jhalawar-Shrichhatrapur  
Neemuch-Mhow Road.*

This is a good metalled road generally fit for motor traffic throughout the year, except at certain places where it is impassable during the rainy season due to floods and the want of bridges.

From Ajmer to Deoli, the road is in good order and fit for motor traffic ; at the Dain river crossing in mile 24, traffic is held up at times during the rains when the rivulet is in flood. At the Banas river near Deoli in mile 52, a ferry service plies during the rains. The need for proper bridges at the Dain and Banas river crossings during and after the rains is greatly felt. From Deoli to the Kotah border, the road (passing mostly through Bundi territory about 48 miles in length) is not regularly maintained. From Kotah border to Shrichhatrapur *via* Jalrapatan, and on to Neemuch the road is in fairly good order.

(iii) *Ajmer-Nasirabad-Barl-Neemuch Road.*

The road from Ajmer to Barl, a length of 43 miles, is metalled and is fit for motor traffic. From Barl to Piplia Chowki—a length of 96 miles, it is unmetalled and not motorable. From Piplia Chowki to Neemuch—a length of 14 miles (in Central India), the road is metalled and in good order. This road is an important one and is the shortest line of communication with the Bombay Presidency and Central India, but is not much used owing to the difficulty of crossing the Khari river just beyond Barl and the portion from Barl to Piplia Chowki being unmetalled.

(iv) *The Abu Cart Road.*

This is a metalled and bridged road from Abu Road station to Mount Abu, which is the headquarters of the Hon'ble the Agent to the Governor General, Rajputana, and a summer resort. There is a public motor service on this road run by a contractor under the control of the District Magistrate of Mount Abu.

There are no other important trunk roads in Rajputana. The larger of the Indian States have, it is believed, metalled and fair weather roads connecting the important towns in their territory with one another.

1. (i) *The mileage of roads of different classes and types in Ajmer-Merwara and Mount Abu is as follows:—*

	Surfaced roads. Miles.	Unsurfaced roads. Miles.
1. Imperial roads (i. e. belonging to and maintained by Government) maintained by the Public Works Department, Rajputana . . . . .	267	12*
(*) Exclusive of 83 miles of Nasirabad-Neemuch road maintained by the Public Works Department as a "contributational work" on behalf of the Mewar Darbar).		
2. District Board roads . . . . .	29	110
TOTAL . . . . .	296	122

1. (ii) There are no bridges worth mentioning.

1. (iii) *The principal places where bridges are required, in Ajmer-Merwara, are—*(a) a bridge across the *Dain river* in mile 24, furlong 1, of the Nasirabad-Deoli Road. Approximate cost Rs. 1,52,000. Considerable difficulty is experienced when this river is in flood and traffic is held up, as Nasirabad is the railway station for the towns of Kekri and Deoli. The floods are not of sufficient height and duration to enable a ferry boat being run, and consequently a proper bridge is the only solution.

(b) A bridge over the *Banas river near Deoli* in mile 52 of the Nasirabad-Deoli Road. A ferry service is maintained when the river is in flood, but it is inconvenient and expensive to maintain. Moreover, when the water in the river is too low for the boats to ply, the difficulty in getting across the river is greatly accentuated, and temporary crossings have to be put up every year. A submerged bridge on this river, which would allow ordinary floods of 5 or 6 ft. to pass under it, would prove a great boon to traffic. Approximate cost Rs. 2,50,000.

(c) A bridge over the *Khari river near Barl*, in mile 28 of Nasirabad-Neemuch Road. Approximate cost Rs. 4,00,000. If the section between Barl and Piplia Chowki (96 miles) of the Nasirabad-Neemuch Road is made fit for motor traffic, and a bridge over the Khari river at Barl is constructed it would prove of great utility both for local purposes and through traffic to Bombay and Central India.

1. (iv) *The authority responsible for each class of road.*—The Imperial roads are maintained from "Central" funds by the Government of India, through the Public Works Department in Rajputana.

The District Board roads are maintained at the cost of the Ajmer-Merwara District Board, 17 miles (surfaced) being looked after by the Government Public Works Department as a contributational work, while the remaining 122 miles are kept in repair by the engineer of the District Board.

1. (v) Funds for the Imperial roads are granted by the Government of India annually in the Public Works Department budget under head "41—Civil Works, Central."

Funds for the District Board roads are allotted by the District Board from its revenues. The District Board levies a cess equivalent to Rs. 4-11-0 per cent. of the land revenue to meet the cost of maintenance of roads, etc., in the district.

1. (vi) Please see statement below.

The figures for 1913-14, 1923-24 and 1924-25 pertain to Ajmer-Merwara and Mount Abu, including the \*trunk roads which were formerly in charge of the Public Works Department (\*Deesa-Anadra-Erinpura Road and Nasirabad-Neemuch Road)].

Year.	Road mileage.			Expenditure on		
	Surfaced roads. Miles.	Unsurfaced roads. Miles.	Total. Miles.	Surfaced roads. Rs.	Unsurfaced roads. Rs.	Total Rs.
IMPERIAL ROADS.						
1913-14 .	262	218	480	42,122 (C) 1,30,256 (M)	5,300 (M)	42,122 (C) 1,35,565 (M)
1923-24 .	287	200	487	†64,368 (C) 2,14,460 (M)	11,969 (M)	64,368 (C) 2,26,429 (M)
1924-25	287	200	487	†1,07,382 (C) 1,91,006 (M)	11,274 (M)	1,07,382 (C) 2,02,280 (M)
1925-26 .	281†	14†	295†	24,438 (C) 2,09,830 (M)	499 (C) 7,684 (M)	24,937 (C) 2,17,514 (M)
DISTRICT BOARD ROADS.						
1913-14 .	43	157	200	14,618 (M)	...	14,618 (M)
1923-24 .	35	86	121	14,709 (M)	10,291 (M)	25,000 (M)
1924-25 .	43	93	136	8,000 (M)	12,000 (M)	20,000 (M)
1925-26 .	31	107	138	6,000 (M)	16,000 (M)	22,000 (M)

C=Construction (represents original works and improvements to roads).  
M=Maintenance.

† Decrease in mileage is due to the Deesa-Anadra-Erinpura Road, the Erinpura Cart Road, and the Barl-Piplia Chowki (for Neemuch) Road having been handed over to the States concerned for purposes of maintenance.

† Includes cost of construction of Dilwara Pilgrims' Road at Mount Abu, length 2 miles.

1. (vii) Details of the expenditure incurred during 1926-1927 are given in Appendix.

2. (a) The total road mileage in Ajmer-Merwara per 100 sq. miles of area is—

Surfaced roads.  
9.9 miles.

Unsurfaced roads.  
4.05 miles.

(b) The total road mileage in Ajmer-Merwara per 100,000 of total population is—

Surfaced roads.  
54.1 miles.

Unsurfaced roads.  
22.2 miles.

(c) The total road mileage in Ajmer-Merwara per 100,000 of rural population is—

Surfaced roads.  
81.1 miles.

Unsurfaced roads.  
33.2 miles.

3. (a) (i) The ratio expressed as percentage of total expenditure on roads from provincial revenues and total provincial revenue is 10.5 per cent.

(a) (ii) The ratio expressed as percentage of total expenditure on roads from local funds and total local funds revenue is 32.68 per cent.

(b) (i) The incidence per head of total population of all road expenditure from provincial revenues is Rs. 0.37.

(b) (ii) The incidence per head of rural population of all road expenditure from provincial revenues is Rs. 0.55.

(b) (iii) The incidence per head of rural population, of all road expenditure from local funds is Rs. 0.08.

4. No road traffic statistics are maintained in Rajputana and Ajmer-Merwara, nor does the small volume of traffic justify the maintenance of such statistics.

5. (a) and 6. So far as the Ajmer-Merwara district is concerned the road system is, generally speaking, well co-ordinated, for local needs, but improvements might be made by constructing the following new links :—

The chief need of the district is for roads linking up the 3 main roads running through the district, *viz.*, (i) the Ajmer-Beawar-Todgarh Road, (ii) the Ajmer-Barl Road, and (iii) the Ajmer-Banas Road just short of Deoli. Of these 3 main roads, it may be noted, incidentally, that two follow the present railway line, and the third the proposed railway line to Kekri and Deoli.

Thus, metalled roads are required linking up Beawar with the Nasirabad-Barl Road and a road linking the latter road with Kekri. For this purpose it is only necessary to improve and metal the existing road from Beawar to Masuda and thence to Bandanwara, Bhinai, Barla to Kekri.

5. (b) and 6. As regards communications with adjacent provinces and States there is much to be desired.

The principal highways passing through Rajputana, which stand in need of improvement are—

(i) *The Agra-Ahmedabad Road* through Bharatpur, Jaipur, Ajmer, Sendra, Pali, Erinpura, Anadra (for Mount Abu), Deesa, Ahmedabad. At present it is possible to motor from Agra to Erinpura, with some difficulty, the chief defects being the portion in Bharatpur territory and at the Banganga crossing in Bharatpur, but beyond Erinpura the road is practically impassable (for a description of the Agra-Ahmedabad Road please see printed Note\*, dated the 1st June 1925). A through road between these places, (i.e., Agra-Ahmedabad) would connect Southern Gujrat and Kathiawar with Northern India. In case the whole road from Agra to Ahmedabad cannot be made passable for motors in the near future, at least the section between Pali-Erinpura and Anadra (for Abu), about 120 miles in length, might be taken in hand, so as to connect Ajmer by road with Mount Abu—the headquarters of the local Administration.

#### *Ajmer-Delhi.*

(ii) A road branching off from the Jaipur-Bharatpur section of the Road at Dausa and joining at *Delhi* through Rajgarh and Alwar, would also prove of General value, and it would provide direct communication with the capital of India through the heart of Rajputana.

#### *Ajmer-Deoli-Kotah-Shrichhatrapur-Neemuch Road.*

(iii) The existing road from Ajmer-Nasirabad-Deoli-Bundi-Kotah-Jhalrapatan-Shrichhatrapur-Neemuch connects Rajputana with the Agra-Bombay Trunk Road which passes through Mhow and Indore. The sections of this road in Bundi territory (about 43 miles in length)

\* *Vile* Introductory paras. 1. (iii) stand in need of considerable improvement, and the proposed bridges \* over (a) & (b). the Dain and Banas rivers in Ajmer-Merwara would add to its utility. This road (from Ajmer-Shrichhatrapur) may, with advantage, be made passable for motors throughout the year. [For a description of this road please see printed Note †, dated the 1st June 1925].

(iv) *The Nasirabad-Neemuch Road*.—(137½ miles) was constructed originally in 1866-1870. The section from Nasirabad to Barl (27½ miles) lying in Ajmer-Merwara is metalled and is fit for motor traffic. From Barl to Piplia Chowki, a distance of 96 miles, the road is, however, altogether impassable now, as owing to the existence of the railway, which runs parallel to the road, the latter has lost its importance and its maintenance has been neglected. With the growing popularity of motor traffic, however, there seems no reason why this road (from Barl-Neemuch) should not be restored to a metalled and bridge communication, as it will considerably shorten the distance between Ajmer and Bombay and provide direct access from Rajputana to Central India. The proposed improvement should also include a bridge over the Khari river at Barl as suggested in para. 1 (iii) (c).

† Not printed.



The military authorities attach importance to the maintenance of this road (*vide* printed Note\* dated the 7th June 1915).

For a description of this road please see printed Note\* dated the 1st June 1915.

7. (a) The development of roads must depend on funds available with the Government of India. It is rather slow at present, and the ultimate aim of the central and provincial Governments should be to link up the various provinces and all the important commercial and religious centres in India.

(b) and (c) So far as Rajputana and Ajmer-Merwara are concerned, the necessary funds will have to be allotted by the Central Government, as there is no separate provincial assignment for this Administration.

The local Administration has no power to raise loans and this question really concerns the Central Government.

8. The form of transport which chiefly competes with railways at present consists of slow-moving bullock carts, which can ply over roads and cross river beds which are impassable for motor lorries. The development of roads so as to make them practicable for lorries will not materially reduce railway earnings.

Small feeder roads of the main roads are generally in the hands of the District Boards, and the demands of, for instance, the owners of cotton ginning factories and cotton growers for roads which would enable them to get cotton to the nearest railway station, are always carefully considered, but the provision of such roads is often impossible owing to lack of funds at the disposal of the District Boards concerned. It might, in some instances, pay the railways to assist local boards with funds to improve feeder roads to convenient railway stations.

9. (a) So far there has been no occasion in Rajputana for road materials to be tested by the Government Test House, Alipore. The existing facilities in this respect seem to be sufficient.

(b) The materials commonly used in Rajputana for the maintenance of roads are stone or kankar metal and murrum, and the usual specifications for their use are followed.

Recently Spramex spraying has been tried on a small length of the Imperial road in Ajmer. The result has been very satisfactory so far as the removal of the dust nuisance is concerned, but the hopes that were entertained for a reduction in the recurring cost of maintenance have not been fulfilled, as the material needs renewal coats almost every year. The question of utilising in Rajputana other road building materials, which have been used with success in the United Provinces, is now being examined by the Superintending Engineer.

(b) (ii) No such experiments have been carried out in Rajputana, as the small volume of traffic existing here does not justify such measures.

(c) and (d) The existing arrangements for the exchange between provinces of the results of experiments and research in the matter of roads, leave much to be desired. The best plan would be for all



provinces to circulate say, once every 6 months, lists of all printed matter issued during the half-year in regard to roads and their improvements, and to supply such publications, on demand, to other provinces free of cost. If road development on any considerable scale is decided upon as a result of the deliberations of the present Committee, a general report showing the progress made from year to year in the whole of India, may, with advantage, be issued annually by the Government of India.

### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

1. The following statement shows clearly the increase in motor transport in Ajmer-Merwara since 1917, prior to which there was no registration in the district.

Year.	Private cars.	Motor buses.	Taxis.	Commercial goods vehicles (Lorries).	Motor cycles.
(Number of vehicles registered during the year.)					
Upto 31st March 1923	63	10	11	1	43
1923-1924	14	3	6	...	1
1924-1925	19	4	5	...	12
1925-1926	33	6	17	2	5
1926-1927	48	9	9	...	13
Total	177	32	48	3	74

There are no regular urban bus services, but in the rural areas there are motor mail and passenger services between Nasirabad and Deoli and between Beawar and Todgarh.

The number of motor vehicles registered at *Mount Abu* (for plying between Abu Road and Mount Abu) during the years 1923-1924 to 1926-1927 are given below :—

	Total number which existed in			
	1923-1924.	1924-1925.	1925-1926.	1926-1927.
(a) Private cars	2	3	10	12
(b) Motor buses*	6	7	8	9
(c) Touring cars (taxis*)	8	10	12	14
(d) Luggage lorries (Commercial goods vehicles*)	...	2	2	2
(e) Motor cycles	1	1	...	...

\*Maintained by the motor contractors, Messrs. Merwanji Rustomji & Co., Mount Abu.

2. The development of through communications with adjoining states and provinces as suggested in replies to questions A.-5 (b) and (6) will, it is hoped, increase the development of motor transport.

3. There is no provincial or local taxation on motors in Ajmer-Merwara, except the usual fees for registration and driving licences. The registration fee is Rs. 64 for a heavy motor vehicle, Rs. 32 for a light motor car or motor cab, and Rs. 8 for a motor cycle.

Renewal of registration is not necessary in the case of private motors but in the case of cars and lorries plying for hire renewal is necessary every year. The renewal fee is Rs. 32 for a heavy motor vehicle and Rs. 16 for a light motor vehicle.

The fee for a driving licence is Rs. 2 per annum.

There is a municipal wheel tax of annas 8 per wheel per month in Ajmer. The Nasirabad Cantonment Committee is considering a proposal to impose a wheel tax.

#### *Mount Abu.*

A toll tax at the rate of Re. 1 per vehicle per trip is levied on cars plying between Abu Road and Mount Abu. (This does not apply to the motor contractor). A special toll of Rs. 2 per car is levied on cars visiting the Lake and Sunset Point Road. The toll is credited to Imperial revenues.

The Abu Municipality also levies a tax on private motor cars plying in the station of Abu at the following rates:—

On the 1st car	. . . . .	Rs. 100 per annum.
On the 2nd car	. . . . .	Rs. 200 per annum.
On any car in excess of two	. . . . .	Rs. 400 per annum.

The income derived from this tax is utilised towards the improvement of roads and blind corners in the station.

4. In Ajmer-Merwara the revenue derived from registration and licence fees is not allocated to expenditure on roads.

In Mount Abu the small amount realised by the Municipality is spent on improving the Municipal roads in the station, *vide* replies to question B.-3.

5. Considering that all taxation derived from motor transport is ultimately borne by motorists, the major portion of such revenue should be devoted to expenditure on roads.

6. (a) The most suitable form of a central tax would be a tax on petrol, besides customs duties.

(b) No provincial tax is needed in Rajputana.

(c) The only possible form of local taxation is *tolls*, which are already in force in one or two places in the Ajmer-Merwara District, and the local tax per vehicle is levied by the Abu Municipality.

7. The Hon'ble the Agent to the Governor General, Rajputana, and Chief Commissioner, Ajmer-Merwara, is generally in agreement with the proposal of the Bombay Government that a duty of annas 4 a gallon should be imposed on petrol and the proceeds distributed to the provinces in proportion to their petrol consumption.

But this arrangement will be of value to large administrations only. In the case of a small district like Ajmer-Merwara the proceeds of the tax would be so small as to be of little use in the improvement or development of roads. The position would be the same in the smaller States. In any case the entire proceeds of the tax on consumption in Rajputana should be distributed to the States concerned in proportion to their consumption, and no such tax could be imposed without the consent of the States.

8. (a) The most appropriate method of assessing motor vehicles for import duty is *ad valorem*.

(b) A combination of horse power and weight.

9. It is certainly desirable that there should be a maximum limit to taxation, in order that the development of motor transport may not be impeded by over-taxation. There should be no great difficulty in framing rules to secure this, but the nature of these rules would of course depend on the form of taxation imposed.

10. It is desirable that arrangements should be made that a vehicle is taxed only in one place, and with this object reciprocal exemptions of provincial and local taxation should be arranged for.

With the rapid and continuous development of motor traffic it seems desirable that Motor Vehicles Rules should so far as possible be identical throughout the country. The rules in Ajmer-Merwara provide for reciprocal exemption in the matter of registration fees.

11. Revenue from taxation on motor transport should be credited to a separate fund for expenditure on roads.

12. This does not apply to Ajmer-Merwara, which is directly under the Central Government.

13. The distribution of revenue from central taxation in the form of block grants to provincial Governments might result in each provincial Government improving its own roads without regard to the communications with the adjoining provinces.

The funds derived from central taxation should mainly be allocated for specific objects such as the construction of arterial roads leading from one province to another. Block grants might also be given to local Governments and Administrations for improving their feeder or link roads. The allocation of funds strictly in accordance with the consumption of petrol would not benefit provinces like Rajputana and Ajmer-Merwara, in an appreciable manner. It would merely benefit other provinces with big commercial centres where a large amount of petrol is consumed purely in local traffic.

14. No.

15. The following cess is levied on the District Board roads in the Ajmer-Merwara district :—

*Ajmer sub-division.*

1. *On the Ajmer-Pushkar Road.*—Wheeled traffic at 6 pies per wheel. Motor cars at one anna per wheel.
2. *On Ajmer-Srinagar Road.*—On every loaded cart, one anna.

*Merwara sub-division.*

- |                                       |                                   |
|---------------------------------------|-----------------------------------|
| 1. <i>Beawar-Sheopura Ghata Road.</i> | } On every loaded cart, one anna. |
| 2. <i>Sinwar-Surraghata Road.</i>     |                                   |
| 3. <i>Bhim-Berar Road.</i>            |                                   |

These cesses are recovered from the owners of the carts plying on these roads, and the net income received is utilised towards the maintenance of these roads.

C.—ROAD BOARDS.

1. There is no Road Board in this province.
2. In view of the contemplated development of roads, and the heavy programme of expenditure in the future, the formation of a Central Road Board would be most advisable in order to deal with the various matters outlined in this question.

3. The Central Road Board should, if possible, include the representative of each local administration and province, who would be able to explain the needs of their respective provinces.

The chief function of the Road Board would be to see that the central fund is fairly allocated to the various provinces in accordance with their actual requirements and to see in what way communication between different provinces can be improved.

4. The formation of a Central Road Board would seem to offer the best solution of the problem.

If, however, it may be decided not to form a Road Board for any reason, the next alternative would be to invite the representatives of the various provinces once a year at the headquarters of the Government of India (or in different provinces every year) for the purpose of elucidating their requirements of funds and for an exchange of views.

D.—GENERAL.

The Hon'ble the Agent to the Governor General and Chief Commissioner has no further remarks to offer. The views expressed above have been recorded by him after consultation with the various local officers of the district.

## APPENDIX.

(Forms referred to at A-1 (vii) of the questionnaire.)

RAJPUTANA AND AJMER-MERWARA PROVINCE.

Detail of expenditure on road <sup>maintenance</sup> construction in 1926-27.

Class.	Mileage to nearest ten.			Provincial expenditure Rs. 1,000's.			Local fund expenditure Rs. 1000's.			Total expenditure Rs. 1,000's.	
	Surfaced. 2	Un- surfaced. 3	Total. 4	Surfaced. 5	Un- surfaced. 6	Total. 7	Surfaced 8	Un- surfaced. 9	Total. 10	Surfaced. 11	Un- surfaced. 12
1. Arterial . . . . .	130	...	130	M. 109	...	109	...	...	...	109 (Rs. 838 per mile.)	...
				C. 20	...	20	...	...	...	20 (Rs. 154 per mile.)	...
2. Provincial . . . . .	140	10	150	M. 103	7	110	...	...	...	103 (Rs. 735 per mile.)	7 (Rs. 700 per mile.)
				C. 17	...	17	...	...	...	17 (Rs. 122 per mile.)	...
3. District Road . . . . .	30	110	140	M. ...	...	...	25	13	38	25 (Rs. 833 per mile.)	13 (Rs. 118 per mile.)
				C. ...	...	...	...	4	4	..	4 (Rs. 38 per mile.)
Total . . . . .	300	120	420	M. 212	7	219	25	13	38	237 (Rs. 790 per mile.)	20 (Rs. 166 per mile.)
				C. 37	...	37	...	4	4	37 (Rs. 123 per mile.)	4 (Rs. 33 per mile.)

## Replies to the questionnaire submitted by the Chief Commissioner of Coorg.

A copy of letter No. A.-1-2626, dated the 12th December 1927, with enclosures, from the Commissioner of Coorg is forwarded with the remark that the Chief Commissioner has no additions to make.

Letter No. A.-1-2626—27, dated the 12th December 1927, from G. W. PRIESTLEY, Esq., I.C.S., Commissioner of Coorg, to the Secretary to the Chief Commissioner of Coorg, Bangalore.

I have the honour to submit herewith my reply to the questionnaire of the Roads Committee forwarded with your endorsement No. 95-T., dated the 24th November 1927.

Copies of the replies of the District\* Magistrate and of the Executive Engineer† are enclosed. In addition I would like to refer to the following matters.

\* Appendix I.

† Appendix II.

*Question No. A. 5.*—The road system of this province is based on two main roads.

(a) The road coming from Mysore through Sidapur to Mercara and thence to Sampaji is part of the main trunk road from Madras to Mangalore *via* Bangalore.

(b) The road from Sidapur through Virajpet to Makut is part of the through road from Mysore to Cannanore and Tellicherry.

These are the most important roads of the province. They are through roads and they also carry the produce of the province down to the west coast ports. These roads require exceptional treatment.

*Question No. A. 6.*—The main defect of the existing roads as seen by a newcomer is that they are too narrow and are full of blind corners. As regards the number of roads and the connections between towns, the province is fairly well supplied.

The defect is not lack of roads, but the dangerous state for fast motor traffic of the existing roads. There are no accepted programmes of re-classification and development that I am aware of.

*Question No. A. 7 (a).*—The immediate need of the province is the widening of the roads and particularly the removal as far as possible of blind corners.

(b) As regards the manner in which such development should be financed, I speak diffidently not having sufficient knowledge, but the question of forming a road fund will be considered on this coming year for this purpose. Money for the fund would be found by licensing every motor vehicle in the province, but details of the matter have not yet been considered. If a Central Road Board is constituted, it might reasonably be expected to contribute towards the two trunk roads already referred to, and their grants should be applied for the present to permanent improvements of the roads, such as bridging, widening and the laying of a solid foundation sufficient to enable the road to stand up to heavy lorry traffic.



(c) This province seems to have almost reached the limit in the matter of raising revenue. The service of loans would be a burden that it cannot now consider.

(d) I know little about the possibility of railways in this hilly country and I have not yet seen what traffic beyond coffee there is down the ghats to the coast, but it does seem a pity that it has not been found possible to have a railway down to the coast to be worked electrically with power derived from a water-fall, such as Barapole. But this is a matter which the Coorg Government with its inadequate finances cannot tackle.

Question No. A. 9 (c).—I am not satisfied. Nothing seems to reach here, *e.g.*, there has been an experiment in Madura in the use of 'tarmac' on a road carrying a heavy traffic of motor buses and country carts. The results of that experiment would be of general interest.

Question No. B. 1—

Type of vehicle.	Number brought on to the register in the year.		
	1913-14.	1923-24.	1926-27.
Private cars . . . . .	...	41	72
Motor buses . . . . .	...	6	18
Taxis . . . . .	...	1	8
Commercial goods vehicles . . . . .	...	1	6
Motor cycles . . . . .	...	16	21

The following bus services run —

- (a) Sri Cauvery Motor Service,—(i) Mercara to Virajpet *via* Sidapur and (ii) Mercara to Virajpet *via* Murnad.
- (b) Sri Chamundy Motor Service,—Virajpet to Mysore *via* Tittimatti.
- (c) Victoria Motor Service—Mercara to Somwarpet *via* Fraserpet.
- (d) Modern Motor Service,—Mysore to Puttur *via* Fraserpet, Mercara and Sampaji. (ii) Mysore to Tellicherry *via* Sidapur and Virajpet.
- (e) T. S. Motor Service (Mail)—(i) Mysore to Mercara *via* Sidapur. (ii) Somwarpet to Virajpet *via* Fraserpet, Mercara and Sidapur.
- (f) Pallonjee's Motor Service—(i) Mysore to Mercara *via* Sidapur. (ii) Sidapur to Virajpet.



- (g) Besveswara Motor Service—Mercara to Kodlipet *via* Fraserpet.
- (h) Sri Laxmi Motor Service—Mercara to Somwarpet *via* Madapur.
- (i) Satyanarayana Motor Service—Virajpet to Kutta.
- (j) The Tellicherry Motor and Industrial Service,—Virajpet to Tellicherry.
- (k) Shankar Vittal Motor Service—Mercara to Mangalore.
- (l) Canara Public Conveyance Co.— Ditto.

*Questions No. B. 5 and 6.*—Taxation on motor vehicle should be of two kinds only.

(a) Customs and excise duties on petrol, on imported cars, spare parts, etc. (to be levied by the Central Government).

(b) Licence fees to be levied by the provincial or local authorities as found convenient.

Tolls should, as far as possible, be removed, and particularly small municipalities (if not all municipalities) should be deprived of the power of levying tolls on motor traffic. They are now only too often like so many robber barons lurking along the main roads levying tolls on motor traffic which has to pass along the tiny bits of main road that lie within their limits, which bits of road are only too often in an uncared-for state. It may not be found possible to remove all tolls from motor traffic, but it is suggested that the matter may be investigated, first taking areas the size of ordinary districts (or in the case of Coorg taking the whole province) as the unit. Within any such area, there should be only one licensing authority. This authority should levy licence fees (as distinct from registration fees) on all motor vehicles that are kept within its area. The fixed licence fees should be fixed sufficiently high to allow of the payment of the licence fee carrying with it exemption from the payment of all tolls within the authority's area. The proceeds of the licence fees would have to be divided up between the local road authorities within the area on some basis to be agreed upon—as mileage of roads to be maintained with an extra allowance for roads within or near towns where the wear and tear would be greater. Or the licensing authority might itself be also a road board for the whole area—but then this would mean that it would need subventions from the pre-existing authorities on account of the other traffic using the roads.

*Question No. B. 7.*—In principle I am in favour of the Bombay Government's proposal. But before any such tax is imposed I should like to know why the price of petrol is so high.

There is a war now between the Standard Oil and Shell Groups which has resulted in a fall in the price of kerosene oil. No such fall has resulted in the price of petrol and it would appear that for practical purposes the supply of petrol is a monopoly. If a monopoly is to continue, it would seem that if the public are not to have the benefit of competition, they should have instead a maximum price fixed for petrol.

*Question No. B. 8.*—I have no views on this matter, beyond the opinion that any motor vehicle fitted with solid tyres should pay licence fees on a 50 per cent higher basis than other vehicles.

*Question No. B. 10.*—Reciprocal exemption is in force now in the matter of registration.

It may be considered whether it would not be possible to arrange it also in the case of licensing of private cars—possibly a higher fee might be charged for a licence to free a private car from tolls beyond the limits of its own area and throughout the province. Otherwise they would be caught by a ring of toll gates set along the borders of each district.

On motor buses, a reciprocal exemption is not possible. With regard to heavy vehicles and commercial vehicles I prefer not to express any opinion.

*Question No. B. 14.*—This is a matter of expediency to be decided by the local authorities concerned and I think the matter should be left open.

What would be to the good, would be if local authorities were empowered to levy licence fees on any other vehicles, the payment of which would exempt those vehicles from payment of tolls. Anything which tends to the ultimate abolition of toll gates is to my mind to the good.

## APPENDIX I.

*Replies submitted by Mr. K. Chengappa, District Magistrate, Coorg, to the Commissioner of Coorg.*

### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

1. There was no motor transport in Coorg till 1915.

(a) Private cars, 1915-22—70 ; 1923-27—72.

There are several other cars registered elsewhere.

(b) Motor buses, 1915-22—4 ; 1923-27—18.

There are 12 bus services. There are also other motor buses running in Coorg but they are registered outside Coorg.

(c) 1915-22—1 ; 1923-27—8. 28 cars registered elsewhere also are plying for hire in Coorg.

(d) Commercial goods vehicles. 1923-27—6.

(e) Motor cycles, 1915-22—26 ; 1923-27—21.

2. There is every likelihood of further development. Commercial goods vehicles have begun to replace carts driven by bullocks, and bus services are also likely to increase as the recent tendency is to replace carts drawn by ponies and bullocks for private purposes by motor cars.

3. Beyond the registration fee of Rs. 32 for heavy motor vehicles weighing more than two tons, Rs. 16 for light motor vehicles, Rs. 4 for motor cycles and the annual fee of Rs. 8 for the renewal of registration of motor vehicles plying for hire there is no provincial taxation on motor transport. The Municipalities of Mercara and Virajpet impose taxes as follows ; on motor vehicles plying for hire and kept within the limits of the municipality.

(i) Motor or steam vehicles constructed to carry two tons or more Rs. 75 per annum.

(ii) Motor or steam vehicles to carry within 2 tons, Rs. 50 per annum.

(iii) Motor buses or charabancs to carry 10 or more persons, Rs. 50 Motor vehicles to carry less than 10 or more than 3 persons, Rs. 25 per annum.

4. There is no allocation of such taxation to expenditure on roads.

5. I consider that all local taxation on motor transport should be abolished, as the municipal boards do not spend any money on the roads which are traversed by motor transport and that all taxation should be provincial. The draft motor vehicles rules which are under consideration provide for the levy of licence fees ranging from Rs. 15 to Rs. 200 on each motor vehicle every 6 months. Any income that may be derived from such taxation should be allocated to expenditure on roads, beyond a small sum that may be needed to cover the cost of stationery and printing and a small percentage for supervision by the police.

6. (a) *Central*.—I cannot think of any other method than a tax on petrol as suggested by the Government of Bombay. The tax may be collected by the central agency and distributed to the province in proportion to the provincial consumption.

(b) *Provincial*.—I have said in answer to question 5 that the draft motor vehicles rules provide for the imposition of special licence fees. I see no reason why private cars which are not subject to any taxation other than registration fees should not also be taxed. I should suggest a flat rate of Rs. 50 for each car.

(c) *Local*.—I am not in favor of any local taxation.

7. I am in entire agreement with the proposal of the Bombay Government to impose additional duty on petrol.

8. I should assess motor vehicles according to their weight.

9. I think it desirable to limit a maximum taxation.

10. I am not in favor of reciprocal exemptions of taxations in respect of licence fees on motor transport, as it will seriously affect this province. Most of the motor buses and commercial goods vehicles which ply for hire in Coorg come from Mangalore, Mysore or Malabar and vehicles stationed in Coorg rarely go out. The rules in force do not provide for such exemptions. On the other hand I am in favour of reciprocal exemptions of registration fees. The rules in force provide for such exemptions.

11. I consider that revenue from taxation on motor transport should be credited to a separate fund for expenditure on roads.

12. This does not arise in Coorg as the dyarchical system of administration does not exist.

13. (a) I am in favour of distributing revenue from central taxation in the form of block grants to provincial Governments.

(b) I think the allocation of the tax on petrol should be in proportion to provincial expenditure on roads. It is not improbable that provinces may not spend money on roads in proportion to the consumption of petrol.

14. I am not in favour of taxation on vehicular traffic other than motor transport. Country carts can go on any road in Coorg and this business is owned by the poorer classes which it is undesirable to strangle.

## APPENDIX II.

*Replies submitted by the Executive Engineer, P. W. D., Coorg Division, to the Commissioner of Coorg.*

### A.—ROAD DEVELOPMENT.

1. (i) Provincial 312 Miles 3 Fur. { Metalled 253 Miles, 3 Fur.  
Unmetalled 59 Miles.

District Board 73 Miles 1 Fur. { Metalled 7½ Fur.  
Unmetalled 72 Miles 1½ Fur.

(ii) The existing principal bridges are across the Cauvery at Fraserpet, Sidapur and across the Harangi at Kudige.

(iii) Bridges are required: (a) across the Cauvery river at Murnad and at 7/2 of Murnad Ammatti road, (b) across the Harangi at 2/1 of Jamboor Santicoppa road.

(iv) The authorities responsible for the provincial and District Board roads are the Coorg Provincial Government and Coorg District Board respectively.

(v) The construction and maintenance are at present financed from the provincial and District Board funds respectively for the provincial and local fund roads.

(vi) The total mileages are:—

Surfaced 254 Miles 2½ Fur.

Unsurfaced 131 Miles 1½ Fur.

The total expenditure on construction and maintenance on all roads and from various sources is as under.

and from various sources is as under:						On original works.	Repairs.	Total.
Year.						Rs.	Rs.	Rs.
1913-14	.	.	.	.	.	33,816	1,33,457	1,67,273
1923-24	.	.	.	.	.	23,516	1,75,018	1,98,534
1924-25	.	.	.	.	.	16,282	1,71,352	1,87,634
1925-26	.	.	.	.	.	16,228	1,60,127	1,76,355

(vii) The details of expenditure are furnished in statement A enclosed.

2. (a) per hundred square miles of area.	(i) Surfaced	16.08 miles.
	(ii) Unsurfaced	8.29 „
(b) per 100,000 of total population.	(i) Surfaced	155.22 „
	(ii) Unsurfaced	80.06 „
(c) per 100,000 of rural population.	(i) Surfaced	164.07 „
	(ii) Unsurfaced	84.64 „

3. (a) (i)	.	.	.	11.75
(ii)	.	.	.	11.22
(b) (i)	.	.	.	1.01
(ii)	.	.	.	1.07
(iii)	.	.	.	6.10

4. No traffic statistics are maintained in the P. W. D.

5. (a) The main roads feed or pass through the inhabited villages and main centres of the district as far as possible. The subsidiary roads connect the main points in the main roads and traverse as far as possible the inhabited villages. Minor roads called village communications connect the main and subsidiary roads with far off villages and these are being maintained by the District Board.

(b) The main roads connect the main trunk roads of the adjoining Madras Province and Mysore State.

6. Most of the roads in Coorg have no soling below the surface of 3" to 4" metal and consequently they deteriorate very rapidly under the heavy traffic. This could be remedied by putting in a soling course of 6" spalls and a 4½" surface coat of 1½" to 2" metal or a 6" course of 3"—5" metal and 3" course of 1½" metal over.

The roads are not sufficiently wide. A minimum width of 18'-0" for metalled surface with a 6'-0" gravelled portion on each side for bullock traffic is necessary for main trunk roads.

Roads should be classified into A, B and C. A class to be main trunk metalled roads and to have a minimum allotment of Rs. 1,000 per mile. B class to be subsidiary metalled roads and to have a minimum allotment of Rs. 600 per mile. C class to be unsurfaced roads and to have a minimum allotment of Rs. 300 per mile.

7. (a) All main trunk roads between large towns to be taken up first, widened as above, bridged throughout and a proper soling and surface put down as above.

Then feeder roads can be improved, bridged and given a good lasting surface. Finally unsurfaced roads can be metalled if considered necessary and made into feeder roads.

(b) Funds to be given from a road fund which should be formed as done in Great Britain.

(c) No. Road fund should be sufficient to pay for construction of all bridges.

8. There are at present no railways in Coorg to be affected by any development in roads.

9. None till now.

### C. ROAD BOARDS.

1. No.

2. A Central Road Board is most desirable.

3. The Central Road Board should have its head quarters in New Delhi with subsidiary head quarters at suitable and convenient towns throughout the country. It should be a separate department dealing only with roads and bridges.

The whole country can be divided into areas which can be divided into districts irrespective of provincial borders so that it may happen that an area or district will consist of portions of two or more provinces as they are constituted at present. A chief engineer will control all works on roads in an area which are being maintained by the Central Road Board and a district engineer will be in charge of all road works in a district. Chief engineers will be responsible to New Delhi.

### D. GENERAL.

All vehicles including bullock carts should be taxed and registered.

## STATEMENT A.

Form referred to at A. 1 (vi) of the questionnaire.

Coorg Province.

Detail of expenditure on road maintenance in 1926-27.  
construction

Class. 1	Mileage to nearest ten.		Provincial expenditure Rs.			Local Fund expenditure Rs.			Total expenditure Rs.		
	Surfaced. 2	Un- surfaced. 3	Total. 4	Surfaced. 5	Un- surfaced. 6	Total. 7	Surfaced. 8	Un- surfaced. 9	Total. 10	Surfaced. 11	Un- surfaced. 12
	250	130	380	1,41,000	10,000	1,51,000	...	10,000	10,000	1,41,000	20,000



## Replies to the questionnaire submitted by the Hon'ble the Agent to the Governor General in Central India.

The Central India Agency is not one administrative unit, but it comprises 91 States and Estates, 1 small British pargana of Manpur with an area of 49 square miles, 3 military stations (Mhow, Neemuch and Nowgong) and 4 civil stations (Indore Residency, Sehore, Sutna and Nowgong Civil Lines). The last seven stations are called "Administered Areas" indicating that these areas, though originally belonging to the States in which they are situate, are under British administration for the time being. The total length of the roads maintained by the Imperial Government is 640 miles and that maintained by States is 1,600 miles approximately. Accurate information as regards the roads maintained by States is not available in my office, nor has there been time to write to the numerous States and collect this information. The length of such roads as are given in the answer to question No. A. 1 (vi) has been taken by measurement from the map.\* The figures in respect to motor vehicles given in the answer to question No. B-1 refer to Administered areas only, as figures for States could not be obtained in the short time available.

### A.—ROAD DEVELOPMENT.

(1) There are two classes of roads in Central India :—

(a) Maintained by the Imperial Government

(b) „ „ States.

As regards (a), the States in certain cases are being asked to contribute a portion of the expenditure on maintenance.

The type is water-bound macadam, no unsurfaced roads are maintained by the Imperial Government. Accurate information regarding unsurfaced roads maintained by the States is not available and they are of little importance.

(i) Mileage maintained by States	1,600 miles
„ „ Imperial Government	640 „
	<hr/>
	2,240 miles

(ii) The following lengths are bridged throughout and passable at all times of the year :—

1. Indore-Sanawad, south of Mortakka.

2. Simrole to Mhow.

3. Indore-Mhow-Manpur.

4. Indore, north to Maksi.

5. Mhow-Rutlam.

6. Harpalpur-Ken River

7. Ken River to Sutna

} Ken river is not bridged.

Other lengths have only submersible bridges and causeways and are not passable during floods.

The principle bridges are, at Ghata-billo 18 miles north of Mhow on the Neemuch road, at Sipra on the Dewas road and the long submersible bridge over the Nerbudda at Khalghat which is only covered a few days every year.

The Nerbudda at Khalghat on the Khandwa road is crossed by the railway bridge which has a vehicle track on the lower boom of the girders which allows vehicles to cross one way at a time.

(iii) At Sarangpur and 3 other crossings between Sarangpur and Maksi on the Indore-Agra Road.

Between Jaora and Neemuch, 3 Nos.

Between Dewas and Bhopal, 6 Nos.

Ken river between Nowgong and Sutna.

Between Sanawad and Khandwa in the Central Provinces, 1 No.

Submersible bridges of the type at Khalghat would be suitable except on the Khandwa road where all should be high level.

(iv) See above.

(v) Imperial and State funds.

(vi) Total expenditure on Imperial Roads :—

Maintenance.	{ Rs. 300,000 }	per annum in round figures.
Original works.		

Accurate figures for States are not available but assuming an average of Rs. 300 a mile a year on maintenance the figures would be 1,600 miles at Rs. 300 = Rs. 480,000.

(vii) See Appendix.

2. Total area of the Central India Agency.

51,531 square miles,  
(1921 Census)

population 5,997,023  
say 6 millions.

(a) 2,240 miles of road to 51,531 square miles of area, or about  $4\frac{1}{2}$  miles of road to every 100 square miles of area.

(b) 37.3 miles for 100,000 of total population.

(c) Rural population 5,446,000.

43 miles for 100,000 of rural population.

3. (a) Total yearly expenditure Imperial funds *plus* State funds—Rs. 780,000.

(b) (i) Incidence per head of total population  $\frac{780,000}{6,000,000}$  or about 2 annas a head.

(ii) On rural population about 2 annas 3 pies per head.

4. None are maintained.

5. (a) The co-ordination within the boundaries of Central India is fairly satisfactory as can be seen from the map.

Short link roads are required between Unchera and Maihar Charkhari and Mahoba.

(b) Central India connects with the Central Provinces to Khandwa and with Bombay, also north to Agra.

Roads to join Bhopal to Saugor and Bhopal to Hoshangabad are required, particularly the length from Bhopal to Saugar, and from Neemuch to Nasirabad.

There are no programmes of development.

6. The main defects are the absence of bridges noted in (1) above. No programmes exist, but the general policy of constructing bridges, widening existing bridges and erecting guard railings at dangerous embankments is being carried out on the Imperial roads as funds permit.

7. (a) Improvements as above in (6).

Rs. 55,000 a year has been spent in the past years on new works on Imperial roads. This could advantageously be increased to Rs. 75,000.

(b) Central revenues *plus* State contributions.

(c) This smaller States might be given loans should they wish to improve their roads.

8. Will not appreciably affect railways.

9. The Government Test House at Alipore has not been used as the funds available are not sufficient to adopt any other form of surfacing than that at present in use, namely, water-bound macadam with whatever material is at hand, nor have funds been available for experiments.

#### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

There was no registration in the Administered areas of Central India prior to 1919. It was introduced in July 1919 as an optional measure and free of charge. The following figures refer to vehicles registered in the Administered areas only, they do not include those registered by the States themselves which must be far in excess of these numbers. No figures are available for the States nor is there time to collect such information.

The annual figures of registration for the Administered areas from 1923-24 to 1926-27 are given below :—

	1923-24.	1924-25.	1925-26.	1926-27.
Private cars . . . . .	44	62	57	57
Buses, lorries, etc. . . . .	7	20	17	35
Taxis . . . . .	—	—	—	14
Commercial goods vehicles . . . . .	—	—	—	1
Motor cycles . . . . .	19	17	19	16

Prior to introduction in August 1926 of Central India Motor Vehicles Rules, the purpose for which a motor vehicle was registered was not given and therefore all cars registered prior to that date have

been treated as private cars, though many of them have been plying for hire in and out of Central India.

2. Prior to 27th August 1926, the date on which the Central India Motor Vehicles Rules came into force, permits to ply for hire were issued by the Public Works Department and subsequently by the Police only to a limited number of *lorries* running mainly on Imperial roads, while small cars plying for hire were exempted from taking out licences. Since the rules have come into effect, cars, buses, lorries, etc., plying for hire have equally to obtain permits and the figures below show the total number of permits to ply for hire issued during the last three years. The permit to ply for hire is in addition to registration.

1924-25	.	.	.	84
1925-26	.	.	.	101
1926-27	.	.	.	268

There is every probability of further developments.

3. The following fee is charged :—

Registration of vehicles (private or public)				Rs.
(a)	do	up to 2 tons unladen	.	16
(b)	do	from 2 to 6 tons	.	32
(c)	do	Motor cycles	.	4
(d)	Permit to ply for hire for vehicles up to 2 tons			8
(e)	do	for 2 to 6 tons	.	16
(f)	Driving licences ordinary			5
(g)	Renewal before expiring			2
(h)	Special driving licences for drivers plying for hire in addition to (f)			4

All are credited to Government.

The cantonment and bazar authorities in various cantonments, etc., levy wheel taxes and this is credited to their funds.

4. The taxation is not definitely allocated to expenditure on roads.

5. 90 per cent. of taxation on motor transport might be allocated to roads, the remainder being considered as paying for traffic police, registration, etc.

6 and 7. As a general principle the Agent to the Governor General is of opinion that the public roads should be free to all and that no special road tax should be imposed on motors and not on other vehicles.

If taxation is unavoidable in order to obtain funds for the roads, a tax on petrol would appear the most equitable.

8. (a) *Ad valorem*.

(b) Weight, fully laden.

9 and 10. Taxation should be limited. Reciprocity is essential. The vehicle should be taxed and registered by the administration in which the owner resides and this should cover the whole of India. In the Central India Area alone, as will be seen from the map\*, there are 91 States and if they did not reciprocate, an impossible situation would

\*Not printed.

result, a car travelling from Mhow to Neemuch would have to change its number plate seven times if the various States passed through did not accept the Mhow registration.

At present reciprocity already exists to a very great extent except as regards the taxation of vehicles plying for hire and uniformity of rules is gradually being obtained.

11. It would be preferable to credit revenues from motor taxation to a separate fund.

12. Does not apply to Central India.

13. (a) The revenue should be spent on arterial roads only with a view to co-ordinating the road system of adjacent provinces. Its allocation should be approved by the Road Board.

(b) The grant might be in the form of a percentage addition to the money already spent on roads.

14. Yes, if taxation is unavoidable for road maintenance there appears no justification for confining it to one type of vehicle only when all contribute to the wear of the road.

15. No.

### C.—ROAD BOARDS.

1. A Road Board was formed in 1925. Representatives of the various Darbars attended. The object of the Board was to obtain uniformity as regards Motor Rules rather than to develop road systems, and the desired uniformity in rules is gradually being obtained.

2. A Central Board appears essential.

3. The Central Road Board should deal with the allocation of central revenues for roads, traffic legislation and registration of motors, standardization of bridges and limiting loads. It should be a standing body of not more than five with powers to co-opt representative of provinces and other administrations as may be necessary.

4. No alternative appears feasible.

## APPENDIX.

*Form referred to at A-1 (vii) of the questionnaire.*

Detail of expenditure on road  $\frac{\text{maintenance}}{\text{construction}}$  in 1926-27—Central India.

Class.	Mileage to nearest ten.			Imperial expenditure (Rs. 1000's).			Local fund expenditure (Rs. 1000's).			Total expenditure (Rs. 1000's).	
	Sur- faced.	Unsur- faced.	Total.	Sur- faced.	Unsur- faced.	Total.	Sur- faced.	Unsur- faced.	Total.	Surfaced.	Unsurfaced.
1	2	3	4	5	6	7	8	9	10	11	12
1. Roads maintain- ed by Imperial Government.	690	—	690*	304	—	304	—	Nil	—	304	—
2. Roads maintain- ed by States.	1550	—	1550	35	Information not available.	35	—	—	—	—	—

\* Out of this length, 50 miles of road have since been transferred to States concerned.



## Replies to the questionnaire submitted by the Hon'ble the Agent to the Governor-General in the States of Western India.

I am directed to explain briefly the situation in this Agency as regards the maintenance and development of roads, from which it will be seen that it is not possible to answer in detail the questionnaire issued by the Road Development Committee.

2. The Western India States Agency comprises Kathiawar, Cutch and the Banas Kantha Agency, and in Kathiawar only has the Agency any control over roads. In the Cutch State such roads are built as are necessary in the opinion of the Cutch Darbar for the purposes of trade and for the facilities of the public; in fact they are confined to a good metalled road from Bhuj to Cutch-Mandvi, from which a branch road leads to Anjar, and another branch road taking off approximately half way between Bhuj and Cutch-Mandvi leads to the western areas of the Cutch State. In the Banas Kantha Agency, there are no important metalled roads and traffic of all kinds has to make use of the tracks crossing the country side in every direction. As the major part of the Banas Kantha Agency is sandy, motor cars are of little use and it would neither profit the Agency to embark on a road scheme nor lead to any great advantage to trade or the public, who are almost entirely small agriculturists and nomads.

3. In Kathiawar the situation is more advanced. There are 4 recognised trunk roads extending from Rajkot to Junagadh (62 miles), from Rajkot to Bhavnagar (107 miles), from Rajkot to Wadhwan (66 miles) and from Rajkot to Jodia (57 miles). Such portions of these trunk roads as pass through the territories of the more important States are maintained by them and the remainder are maintained by the Agency from funds collected from all jurisdictional States in Kathiawar. The contributions made to the Agency by the States on account of roads are fixed at a figure of Rs. 6,333 and with this amount such repairs as may be possible have to be effected. The result is that the standard of these main roads varies. In some states they are exceedingly good and in others the Agency has to remind the Ruler of his obligations. If a general description has to be given of the roads in Kathiawar, the trunk roads could be described only as fair, and practically all other roads as primitive. Since, however, the country side is flat it is possible even under present conditions to motor practically anywhere in Kathiawar in a car suited to rough roads.

4. It will be understood from the foregoing description that it is not possible to give any figures of incidence per head of road expenditure. It is equally impossible to obtain accurate road traffic statistics. As regards the possibilities of development, the Agency or any other body in question would be confronted by the fact that the railways of Kathiawar are owned by some 6 or 7 proprietary States who look to them as a source of income. So long as these conditions persist, none of the States which own railways can be expected to take any very



great interest in the question of roads which are regarded as rivals to the railways and not to be encouraged beyond the point up to which the Agency does in fact insist in the interests of efficiency.

5. Motor transport has increased appreciably in this Agency only in respect of the number of private cars owned by Princes, Chiefs and Talukdars. In one or two isolated cases private enterprise has been responsible for motor services to the more inaccessible regions, but the number of companies so formed is insignificant. By a convention among the States, the registration of all cars is fixed at figures depending on the type of vehicle involved and in those States through whose territory a trunk road passes, no doubt these fees are allocated to expenditure on roads.

6. Throughout Kathiawar arrangements already exist whereby motor vehicles are taxed only once. Taxation is regulated according to the registration, all motor vehicles, the property of State subjects, being registered and taxed by the respective States and all those the property of residents of Agency areas being registered and taxed by the Agency.

7. There is no Road Board in this Agency and conditions, with so many conflicting interests, are such that a Road Board is not likely to give good results unless the prospect of receiving some revenue from central taxation for allocation to road development in this Agency could be held out as an inducement to the States. Generally speaking road development in this Agency is only likely to be successful if it is confined to the improvement of the present trunk roads and to the maintenance of any bridges and culverts incidental to them, as well as to the construction of a good road connecting Kathiawar with British India. A convenient connection could be from Wadhwan to Ahmedabad, replacing, if necessary, the road from Ahmedabad *via* Dholka and Dhandhuka which joins the Rajkot-Bhavnagar trunk road. The road *via* Dholka and Dhandhuka is too long and circuitous a route for convenient entry into or exit from Kathiawar and has fallen into disrepair in many places. Money would therefore be more usefully expended on a direct connection between Wadhwan and Ahmedabad.

8. It is suggested by the Government of Bombay in their letter, which forms Appendix II to the questionnaire of the Road Development Committee, that the Indian States should share proportionately in the revenue derived from an increase in the price of petrol. If such a suggestion appears likely to be adopted, it would be preferable in this Agency not that the Indian States should share individually but that the proposal should be made the opportunity for once again pointing out the advantages of a Central Road Board, responsible for the development of the trunk roads to whom the proposed revenue could be allocated. The States would be more likely to co-ordinate their efforts if the funds now found by them could be supplemented by a grant from some central authority, but before, any such action is taken the States themselves would require to be given an opportunity of expressing their opinions.

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## Replies to the supplementary questionnaire submitted by the Agent, Assam Bengal Railway.

### A.—ROAD DEVELOPMENT.

1. By handing over many of the roads to the Local Boards in the areas served by this railway I am of the opinion that the general standard of maintenance of the roads has deteriorated. The only remedy for this that I can see is for the Public Works Department to resume charge of all the main roads.

Throughout Eastern Bengal and Assam through which this railway runs most of the roads are unmetalled, many have only temporary wooden and bamboo bridges or ferry boats over streams, and in rainy weather these roads are practically impassable for motor traffic. Metalling and bridging on these roads is the only solution to improve matters.

In Assam a Road Board has recently been formed to advise on what roads or sections of roads the money available in each year for the development of roads should be spent. This I consider is a move in the right direction.

I am not aware if Bengal has formed such a Road Board. If not, it should be formed.

2. From Chittagong to Silchar and from Tinsukia to Pandu this railway runs along the foot of a track of hilly country and the configuration of the ground and rivers renders it so that most of the roads and rivers run transversely to the railway. The only one big exception to this is the Assam Main Trunk Road from Gauhati (and Shillong) to Dibrugarh. This road more or less parallels the railway and river throughout its entire length but often at some considerable distance from the railway. The configuration of the road system as it exists is suitable for the free movement of traffic. Most of the roads cut across the railway at right angles; on one side running up the valleys into the hills and on the other side leading to the towns and villages situated on the river banks.

3. We welcome new road construction but in the present backward state of road communication in this part of the country consider that rather than building or metalling roads which parallel the railway as does happen for short lengths in some cases, all available money should be devoted to metalling the roads leading up to railway stations and connecting these approach roads up to the nearest and most important towns; proceeding thereafter to extend the metalling from these towns outwards into the various districts.

Combined road and railway bridges I view with great aversion in the interest not only of public safety but also of economy and efficiency of railway working. All such bridges necessitate the upkeep of watchmen and signals and would lead to delay to trains. On unimportant branches the objection on account of delay to trains does not apply so strongly as on the main line but the cost of watchmen and signals

and the safety of the public remain. These risks and expenses no railway administration will willingly incur.

### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

1. So far we have welcomed the addition of motor transport on the roads. In only one or two isolated cases have motor buses and taxis acted as competitors for our traffic. In nearly all other cases they have increased our railway traffic by bringing passengers 10, 15 and 20 miles to the railway station. Such passengers if they had had to walk would probably not have travelled at all. During the rains these motor services are mostly abandoned to the inconvenience of the people in the locality.

2. In two cases we have used motor transport companies as out-agents and forwarding agents working in conjunction with the railway. Only one such agreement is now in force, namely with the Gauhati-Shillong Motor Transport Company. The others failed to function during the monsoon months as the roads became impassable to wheeled motor traffic and we had to revert to boat transport by river.

Until the roads are metalled and through communication throughout the year can be maintained no great use of these motor transport companies can be made in conjunction with our railway working.

### C.—ROAD BOARDS.

The Central Road Board should work in much the same way as the Assam Road Board is now functioning.

The Assam Board has promised to keep this administration fully informed of its intended activities and in this way it is hoped that co-operation and not competition between the road and railways can be maintained.

The crying need of all roads is metalling. At present practically the only people who have road metal quarries are the railway and we are continually receiving demands from District Boards and municipalities for road metal. These demands we are only too pleased to supply as time and labour permit but our railway demands for ballasting of the line must obviously take precedence over all other demands and the others have often to go wanting their road metal.

If a Central or Local Road Board is formed they should establish their own quarries, lay down sidings into them and arrange the distribution of road metal to all indentors throughout the province in order of urgency or priority of demand.

## Replies to the questionnaire submitted by the Bengal and North Western Railway.

### I. SUPPLEMENTARY QUESTIONNAIRE.

#### A.—ROAD DEVELOPMENT.

1. A map\* showing particulars of roads which serve our stations and which could be improved is being prepared and will be submitted shortly.

The general direction of roads is suitable.

In a number of places, more especially in the province of Bihar and Orissa, the state of the roads between railway stations and markets impedes the free movement of traffic. This is especially so during the monsoon.

3. The railway is in favour of all road improvements which will have the effect of developing communication and encouraging traffic. Also see reply to Q. A. 8 of main questionnaire.

#### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

1. Motor transport is affecting our short distance passenger traffic, and in some places the railway between busy stations has been short circuited by motor buses.

2. We welcome all services which convey traffic to and from our stations, and naturally discourage any motor service which is in direct competition with the railway.

#### C.—ROAD BOARDS.

1. A Central Road Board with functions similar to the U. P. Board of Communications but having greater powers and scope is suggested. Each railway in the province is represented on the Board by an officer who looks after the interests of the railway.

### II. MAIN QUESTIONNAIRE.

#### A.—ROAD DEVELOPMENT.

4. It is understood that road statistics in the provinces which this railway serves—United Provinces and Bihar and Orissa—have been practically abolished. It is suggested that these should be re-introduced, at least on important roads. From the railway point of view these would be very useful.

8. Development of roads and improvement of existing roads between railway stations and outlying towns and districts would be of advantage, but it would be a waste of money to make or improve roads parallel to a railway or between places already served by a railway.

## Replies to the questionnaire submitted by the Bengal Nagpur Railway.

### I. SUPPLEMENTARY QUESTIONNAIRE.

#### A.—ROAD DEVELOPMENT.

1. The only roads that railways are intimately concerned with may be divided into two classes :—

- (i) Roads leading from railway stations to trade centres and thus acting as feeders to the railway.
- (ii) Roads running parallel to a railway, or short circuiting it, serving the same towns that are served by the railway—and thus taking traffic away from the railways.

Railways being the cheapest form of long distance transport, considering quickness and efficiency, and with a huge sum of money invested already in the building of them in this country it is essential that every encouragement should be afforded and facility provided which would result in the traffic coming to the railway. Further, industrially and agriculturally, India has not yet developed to the extent of being able to provide traffic which would sustain or render necessary two alternative and competing systems of transportation. It is true that in England both these systems of transportation exist and flourish side by side, and that good roads play a considerable part in moving the traffic of the country, but it is not a good analogy as the conditions are very different. For one thing, the wealth per head of population in England is considerably higher than the corresponding figure in India, and privately-owned vehicles have therefore had a very considerable influence on the existing road transport system having developed to the extent it has in that country.

Any system of roads would be very expensive to construct owing to the large number of rivers and canals over which bridges would have to be thrown in those parts of the country where a system of road development would primarily be required and the amount of money that would be available from a road tax would, owing to the paucity of traffic, be totally inadequate to maintain the roads in good order.

Looking at the matter from these points of view, as well as in the interests of transportation generally in the present state of development of India, the proper maintenance of existing feeder roads to railways and the building of additional feeder roads where required would appear to be the line of development of a road system of the country which should receive primary consideration in any general scheme of road development.

In regard to the question of proper maintenance of feeder roads, it may be pointed out that while many of the existing feeder roads are little more than cart tracks and would under no circumstances be capable of dealing with heavy road motor traffic, they would be capable of meeting existing requirements in the present state of development of the country provided their chief outstanding need was met, *i.e.*, the provision of bridging over waterways which in the dry season present no



obstacle to the traffic but the absence of which renders the feeder road totally unusable during the monsoon season.

2. The state and configuration of the road system in the area served by the B. N. Railway do not, generally speaking, and subject to the provision of bridging on feeder roads referred to above, act as a restrictive influence on the free movement of traffic, although the effect on this railway varies in different parts of the country. In Bihar, for instance, and in parts of the Central Provinces served by the narrow gauge Satpura Railway, the road system is excellent to the extent that it is a serious competitor with the railway. Again, on the broad gauge main line between Bilaspur and Nagpur, the Great Eastern Road runs parallel to the railway track, but owing to the fact that it touches the railway only at two stations, *viz.*, Drug and Raipur, and that at other places it is distant from the railway by as much as 15 miles, and that good feeder roads to the other stations do not exist, railway traffic does suffer to a certain extent during the rains when the country tracks become impassable.

3. Broadly speaking the railway regards all new road construction favourably as an extension of the transport facilities of the country and therefore in the majority of cases tending to bring more traffic to the railway. Taking a wide view it is only exceptionally that new road construction would result in decreasing traffic on the railway.

Direct financial assistance cannot be given by the railway towards road construction but we are always prepared to build combined road and railway bridges provided the local authorities are prepared to pay their share of the cost.

#### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

1. Road motor transport in the area served by the B. N. Railway although only in its infancy, has a marked immediate effect on the passenger and parcel traffic revenue of the railway in those local areas where it exists and there is no question that with good roads and under capable management with good financial backing such method of transport would have a serious effect on the coaching revenue of the railway. This effect is more marked perhaps because in practically all cases motor operations have been started in direct competition with the railway. They have a distinct advantage in mobility, and service from door to door, both of which in the minds of the travelling public outweigh anything less than a marked difference in actual cost of service by the railway as compared with the motor.

2. It follows therefore in reply to this question that the development of a road system in the country should have as its object the linking up of large centres not served by railway (and which would offer a large and lucrative field for motor development) and *pari passu* with this the connecting up of railways to main roads for the reasons put forward in my reply to question No. B-1.

#### C.—ROAD BOARDS:

1. All schemes regarding railway programmes and road programmes should be interchanged between the Railway Board and the Central Road Board and their mutual bearing could be examined.

For instance if a branch line is to be built in any area, the Central Road Board would then be able to advise the Provincial Board and a scheme for feeder roads to the new railway made, and after the opening of the branch line a traffic census should be taken periodically of the cart traffic on these roads. If there is found to be any marked falling off of cart traffic on these roads and an increase on others feeding the railway, a more scientific distribution of funds for repairs could then be made. It often happens that a new railway alignment runs more or less parallel with an existing road. For short distances this road would probably continue to take the traffic but if such traffic was found to be negligible after the opening of the railway the class of maintenance on such roads could be reduced.

## II. MAIN QUESTIONNAIRE.

### A.—ROAD DEVELOPMENT.

7. (a) We consider that what is required is better foundations to the average district road, better drainage and better surface. The rate of development obviously depends on the funds available.

(b) The fairest manner to finance developments is a tax on petrol. The amount of petrol consumed is a fair index to the ton mileage of a car and in consequence of the amount of use it makes of roads.

(c) We are of opinion that loans for the construction of roads and bridges will give the best results provided there is a definite financial allotment every year, *e.g.*, if a petrol tax is imposed and the proceeds earmarked for roads, a loan could be raised to an extent that with the help of say  $\frac{2}{3}$  of the income from the tax would provide for the interest on the loan and the necessary sinking fund to redeem the loan.

Much quicker progress can be made by this method and there is every probability that the extensions and improvements would lead to greater use of the roads by motor vehicles and thus automatically increase the revenue available for improvements.

8. Motor traffic with a judiciously planned system of roads is likely to improve the receipts from railway traffic. In order to be sure that roads and railways are co-ordinated, local committees representing the railways, District Boards and traders should be constituted. So far as is known, there is no machinery at present for co-ordinating roads and railway development, we would recommend a system of local committees as described above reporting to a provincial communications board.

### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

8. We are of opinion that the fairest way of assessing motor vehicles for the purpose of (a) import duty and (b) registration fees, is by a combination of horse power, weight and carrying capacity (Carrying capacity being seating accommodation in the case of passenger vehicles, and net load carried in the case of passenger vehicles, and net load carried in the case of lorries for the conveyance of goods.)

11. We consider that all revenue from motor taxation should be credited to a separate fund and definitely allocated to expenditure on roads.



13. (a) Normally revenue from central taxation should be given in the form of block grants to provincial Governments but I consider that power should be retained in case of necessity to allocate a portion of it to specific objects. The actual expenditure on the named object would normally come under a provincial Government.

(b) We do not think any hard and fast rule can be laid down here. On the face of it the distribution of the proceeds on the basis of consumption in each province seems fair and would normally give good results, but special circumstances might arise which would make it advisable to increase the grant to a province.

Two instances which come to my mind in this connection are serious floods which destroy a large stretch of roads, or a bad famine in which case it might be profitable to increase the road grant to provide food and work to local labour.

14. In theory, yes ; in the case of bullock carts there may be some difficulty in practice.

#### C.—ROAD BOARDS.

2. We consider it desirable that a Central Road Board be formed for the purposes enumerated.

3. The functions of the Central Road Board should consist of allocation of revenue, co-ordination of provincial programmes. It would be in touch with the Railway Board for the purpose of co-ordinating road and railway programmes and could act as a distributing agency for technical information and experience. I consider that research work should in the main be left to Provincial Boards as conditions vary so much in different provinces and problems which are of vital importance to one may not arise in another.

#### D.—GENERAL.

We consider the formation of Provincial Road Boards as necessary as the formation of a Central Road Board for the reasons stated above.

### **Replies to the supplementary questionnaire submitted by the Bombay, Baroda and Central India Railway.**

#### A.—ROAD DEVELOPMENT.

We are not in a position, without more time for collection and examination of the facts, to make any detailed suggestions in respect of improvements or additions required in the interests of transportation. Nor are we in a position to assess in detail the effect of the present state and configuration of the road systems in the area served by this railway on the free movement of traffic.

Generally, it is desirable in the interests of transportation that adequate road communication should be provided from railway stations to the areas served by those stations, and it is probable that a detailed examination would show that much improvement might be effected in this direction.

Generally, the policy of this administration is to favour the construction of such feeder roads but not, of course, the construction or improvement of roads running alongside the railway and connecting places between which transport is provided by the railway.

With reference to the question about combined road and railway bridges, the provision of a roadway and railway on the same level and alignment is undesirable because, *inter alia*, of the very serious interruptions to road traffic even with a comparatively light railway service and of the heavy cost of protective equipment and staff. The provision of a roadway and railway on the same girders but at different levels is only practicable in the case of large bridges and conditions vary so much that it is necessary to consider each case on its merits.

#### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

A census taken in 1926 showed that there were 68 stations of this railway that were served by motor services which acted as feeders; there were 18 motor services which were competing with the railway. It is probable that there has been a substantial increase in the number of motor services since the above census was taken. In most of the cases where competition exists the railway fares are less than those of the road service and the latter has been started because of the infrequency of the rail service or the greater convenience of the motor service under certain conditions. In many cases rail motor coaches will form a cheaper method of transport than the road motor service and this railway administration is obtaining a number of rail motor coaches for this purpose.

As indicated above, the policy of this administration would be to favour the encouragement of motor transport services which act as feeders to the railway and possibly, should necessity arise, itself to establish such transport services.

#### C.—ROAD BOARDS.

If a Central Road Board is constituted, the procedure for co-ordination of road and railway development would depend to some extent on the relations between the Central Road Board and the provincial Governments. Presumably the Central Board would be mainly concerned with important main roads and particularly inter-provincial roads. In such cases co-ordination would probably best be secured by liaison between the Central Road Board and the Railway Board, particularly in view of the fact that frequently more than one railway administration would be concerned.

### **Replies to the questionnaire submitted by the Burma Railways Company, Limited.**

It is proposed to deal with the points raised in the questionnaire in general terms instead of taking each question *seriatim*.

2. In the first place, it should be pointed out that Burma is somewhat peculiar in that the country is cut up by hills running north and

south and by the Irrawaddy river. The main arteries of the railway run in valleys and are generally speaking either bounded by hills or by hills and river. All important towns which are not situated on the railway are fed or will be fed by branch lines running east and west. It may therefore be taken as an accepted fact that inter-communication between towns and villages situated on the railway is adequate.

3. There are, however, numerous villages and towns situated on the railway which have inadequate road communication to villages situated at some distance from the railway, making the conveyance of produce to the railway very difficult and forcing the cultivator to dispose of his produce before the rains, owing to the impracticability of carting during the rains, and inter-communication generally between villages is often inadequate.

4. On the opening up of country by railways, feeder roads should keep pace with the construction of the line but this is seldom the case and passengers and produce can only reach stations with difficulty.

5. The railway should welcome the policy of constructing feeder roads which will be the means of opening up the country and give greater facilities for travelling but in my opinion we should most strongly object to the construction of grand trunk roads running alongside the railway line. Such roads must inevitably become a thorn in the side of railways and so far as this country is concerned they are not wanted. It is well known that railways cannot compete with short journey motor traffic which is able to lift people from door to door. On certain sections of this railway we are already experiencing the effects of road motor competition, and as the Government of India are financially interested in railways it would be a wrong policy to support any scheme which contemplates trunk road construction or roads parallel to the railway connecting railway towns and villages which must eventually enable motor cars to compete with railways. Trunk roads will benefit oil producers, motor car manufacturers and selling agents, but not the railway.

6. There is a great deal to do in the country in providing feeder roads and if the policy is to provide them, the Burma Railways should strongly support that policy. But when a new line is opened we are not so much concerned with whether the road is fit for motor transport but whether one exists sufficiently serviceable for the transport of produce by bullock carts although it must be admitted that a road of a standard suitable for cars will develop passenger traffic.

7. We are afraid we are not in a position to give the localities where the free movement of traffic is restricted owing to lack of roads, nor are we in a position to say whether or not the Provincial Communications Board has been the means of co-ordinating the development of roads *with* railways, and whether or not a Central Road Board would function any better than the existing Provincial Board.

8. We would mention for your information that the freight rates on petrol and motor cars in India will shortly be reduced, the former within two months, and we shall probably be asked to follow suit. The petrol classification on this Railway is 10 R. R. and 9 O. R. whereas

on Indian Railways it is 8 R. R. and 6 O. R. The extent to which freight affects a gallon of petrol at up-country stations on this railway is under investigation.

## Replies to the supplementary questionnaire submitted by the Eastern Bengal Railway.

### A.—ROAD DEVELOPMENT.

1. The area served by the Eastern Bengal Railway, *viz.*—Eastern and Northern Bengal and the districts of Goalpara and Kamrup of the Assam Province,—largely deltaic in origin, has one marked physical feature, *viz.*, its numerous waterways, many of them of considerable size.

The fact that these waterways are more or less navigable for the major part of the year by country craft has restricted the development of roads. Even in the days of the Honourable East India Company, as factories and outposts were opened, the rivers formed the chief means of communication, and trade followed the river routes.

Such roads as were constructed were chiefly to connect trade centres situated at a distance from a river with the nearest river. These roads were rarely first class, and usually seasonal with only temporary bridges.

Political needs engendered the construction of a few military roads, metalled (usually with vitrified brick ballast) and bridged,—such as the Badshahi (or Imperial) road in Murshidabad district, a relic of the Moghul days; the Calcutta road between Calcutta and Berhampore, when the latter was a military cantonment; the Jessore to Calcutta road in the Jessore district. One of the longest metalled roads is in the Purnea district, the old Ganges-Darjeeling military route, 120 miles long from Manihari on the Ganges to Siliguri at the foot of the hills.

The advent of the railway marked the decline in the upkeep of these main roads and also put back the development of village and district roads between neighbouring towns.

A hat (local market) or village growing in agricultural or industrial importance, if within a reasonable distance of a railway line, asks for a new station to be opened to serve it though possibly all that is required is an improvement in the road or track already existing to the nearest existing railway station. There are difficulties, generally financial, in persuading the district authorities to construct and maintain an all-the-year round road, hence the line of least resistance is to prevail upon the railway to open a new station that can be connected by a mere cart track with the market or village.

The railway records contain innumerable applications of this nature. The short interstation intervals on the Eastern Bengal Railway is the result of compliance with such requests. The average distance between stations in the Eastern Bengal Railway system is only 4.21 miles.

The bridging of the numerous waterways in the area served by the Eastern Bengal Railway is expensive in first cost and subsequently in

maintenance. This bridging has been efficiently effected by the railway and duplicate road bridges are therefore unnecessary.

Roads should therefore connect the railway with the areas on either side of it.

The country falls into two areas:—High ground roughly in the north and west of the area served by this railway, and low swampy ground in the south and east of the area. In the higher portions carts are used throughout the year and in the lower portions boats are the main means of transport.

It will be a long time before carts and boats are superseded by motor transport for the movement of goods. On the other hand, motor buses for passenger traffic are developing and will continue to do so as practicable roads are developed.

The Eastern Bengal Railway has broadly two directions—from south to north, usually running parallel to the main waterways of the area and from west to east usually running at right angles to the waterways of the area. The road development would therefore fall naturally into two groups :—

- (i) Roads from east and west to connect important points on the main waterways with the north and south running railway. Such roads will usually be short and in low country; they will be expensive as they will cut across country subject to annual flooding and must therefore be constructed with numerous bridges or the crest lowered to allow floods to spill over the top of the road.
- (ii) Roads from north and south to connect outlying centres of trade and population with the railway running east and west. Such roads will be fairly long but cheaper in construction as they will generally follow the water-sheds, necessitating only low bank and little bridging.

In both cases the surface of the roads should be sufficiently strong to withstand the wear and tear of motor bus traffic.

A point to be remembered when discussing road development in Bengal particularly is the deltaic origin of the greater portion of the area. There is not a single stone in the country nor any natural raw material available for the surfacing of the roads. In the past a manufactured indigenous material has been used for the metalling of the roads, namely "Jhama" (vitrified brick) ballast; this in itself is not sufficiently hard to withstand the wear and tear of motor traffic. It is suggested that in combination with cement a concrete road surface might be constructed of sufficient strength to stand up to the expected wear and tear.

The railway administration though unable to make direct contribution to the upkeep or construction of feeder roads has by the quotation of reduced rates for the conveyance of road metal, assisted District Boards and municipalities in northern Bengal to improve road communications.



At present the rates for a lead of 200 miles for a 9-ton wagon (metre gauge) compare as follows :—

District Board.		Public.	
Local booking.	Through booking.	Local booking.	Through booking.
Rs.	Rs.	Rs.	Rs.
42	38	64	60

With a view to the improvement of, and addition to, the existing road system in the interests of transportation generally this railway has compiled detailed lists\* of—

Feeder roads already in existence,

Roads requiring repairs and

New roads to serve as connections with the railway.

2. The present state of the road system generally is not satisfactory—from representations which have been received from various centres, the roads call for better maintenance and more bridging.

The configuration of the road system, which was influenced by the fact that trade followed the waterways, has acted to a certain degree as a restrictive influence on feeder roads to the railway. The road system is however gradually altering so that railway stations are now becoming the foci of new roads. This is noticeable in the Cooch Behar, Goalpara and Kamrup districts where development of tea garden and forest lands is in progress.

3. The want of systematic co-ordination between the district and railway authorities has been a difficulty. The Public Works Department, Bengal, used to prepare and submit to the railway administration a programme of projected feeder roads. This statement showed the various proposals for new roads, alterations to existing roads, etc., and the order of priority in which these works would be undertaken.

Under the orders of Government this project programme compiled by the Public Works Department Secretariat has been discontinued. The programme served a useful purpose in that the Railway Department obtained some data to work upon, and also afforded the railway administration an opportunity to advise the Public Works Department on what roads were important from a railway point of view.

The need for co-ordination between the railway and the District Boards has long been recognised and this was re-affirmed recently when the Traffic Manager of the Eastern Bengal Railway drew the special

attention of his district officers to the matter at a meeting in July 1926. A subsequent discussion of the subject brought out the fact that District Boards had not sufficient funds to keep existing roads in repair and that new feeder roads could not be considered unless the railway helped financially and largely towards their construction. The civil authorities invariably informed the railway that they were unable to improve existing roads or construct new ones without substantial financial assistance.

To afford this assistance is not within the province of the Eastern Bengal Railway—*vide* statement made by the Honourable Member for Commerce and Railways in the Simla Session (August—September 1926) of the Legislative Assembly, which reads as follows :—

“The Devolution Rules prescribe that central revenues can contribute to roads only when these roads are of military importance.”

That the need of co-operation between the civil and railway authorities is as much in the interest of the District Boards as of the railway is evident from the following recent instance :—

The Railway Traffic Officer in charge of surveys found that the Jalpaiguri District Board intended spending a large sum of money on a road and bridge to connect Lahiri Hat and Jalpaiguri, he pointed out to the Chairman of the District Board that the railway were about to construct the Dinajpur-Ruha line which would serve the same area and that the road was, therefore, unnecessary. The Chairman agreed that it would be a waste of funds and decided to divert the proposed expenditure to the construction of feeder roads to connect with stations on the Dinajpur-Ruha Railway.

The policy of the Eastern Bengal Railway is for the district traffic commercial officers to be in touch with the civil authorities, to consult and advise both on the maintenance of existing roads and the provision of new roads : ultimately if possible, for the civil authorities to co-opt the district railway officers when the question of feeder roads is under consideration. The railway does not, except in special circumstances, favour the construction of roads parallel to the line of railway.

The railway does not favour road and railway being carried on the same girders on a bridge. There is however no objection to road bridges being built alongside railway bridges, thus reducing, to the mutual benefit of both authorities, the cost of the construction and maintenance of expensive protection works, but each means of communication must be carried on independent girders.

#### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

1. Motor transport is still in its infancy in the Eastern Bengal Railway area. As there are no main roads to speak of parallel to the railway and as the district road system is gradually being based on railway stations, motor transport is on the whole a feeder to, rather than a competitor with, the railway. Motor transport at present chiefly caters for passenger traffic ; only in the case of railway out-agencies do motor lorries ply for goods traffic.



An investigation was made in 1926-27 into the development of motor bus traffic in relation to the railway and it was ascertained that in the following instances there was competition for passenger traffic—

- (i) Between Budge-Budge and Calcutta—14 miles (chiefly municipal roads, therefore outside this reference) on the southern section.
- (ii) Between Kagra Bazar and Beldanga Bazar on the Murshidabad section—12 miles.
- (iii) Between the Purnea Courts and Karhagola Road Station (B. and N.-W. Railway) on the Bihar section—by rail 31 miles ; by road 24 miles.
- (iv) Between the Purnea Courts and Kishanganj on the Bihar section—by rail 76 miles ; by road 42 miles.
- (v) Between Dacca and Narayanganj on the Dacca section—10 miles.

At all these centres there are remains of good main roads referred to in the reply to A. 1 above.

The existence of these services is due to the fact that the bazaar or court centres are at some distance from the railway station serving such centres, and passengers are saved the conveyance hire from station to market or court, *e.g.*, Purnea Courts are  $3\frac{1}{2}$  miles from the Purnea railway station. These services are not entirely competitive as they act, to a certain extent, as feeders to the railway.

Motor transport services, either buses or cars, have been started at several stations to act as feeders to the railway. They have not on the whole been a success due to want of good roads, proper attention to engine maintenance and sound financial arrangements. Several such services have failed for the above reasons.

2. The railway has encouraged private enterprise in the direction of feeder motor transport, by affording access to station yards, facilities for the erection of petrol storage installations and for the transfer of passengers and luggage, and, when, consolidated as a business concern, by opening an out-agency at the distant terminal in conjunction with the motor transport concern and giving through booking facilities.

The difficulty has been that so many of these services are of mushroom growth and the railway has been unable to negotiate with a properly organised company or service.

In the case of Shillong (Assam), when it was within the Eastern Bengal Railway sphere of action (it is now in the Assam-Bengal Railway sphere of action on the transfer of the Pandu-Gauhati section to that Railway), the railway opened an out-agency for all traffic at Shillong and assisted in the inauguration of the motor transport service for goods and coaching traffic between Pandu and

Shillong—68 miles. Other instances of encouragement to motor transport on the part of the Eastern Bengal Railway are :—

At Pabna an out-agency was opened for coaching traffic as soon as the railway was satisfied as to the ability of the Biswas Motor Company to maintain a regular service between Ishurdi and Pabna—18 miles. The railway moved the District Board to strengthen the bridges on the road, and also allotted to the Biswas Motor Company space for waiting room and garage accommodation at Ishurdi. At Nator there is a motor service plying between Nator and Rajshahi—28 miles—subsidised by the Postal and Police Departments. Facilities were given at Nator for the transfer of parcels and goods between the railway and the motor service. No out-agency was considered advisable in view of the fact that the construction of a railway line to serve Rajshahi has been commenced.

It must be noted that all these isolated motor services have to resort to the railway for the conveyance of their motor bodies, chassis, parts and accessories, there being no trunk or main roads connecting them. The railway therefore obtains revenue by the opening of motor feeder services.

#### C.—ROAD BOARDS.

1. It is presumed that if a Central Road Board is constituted its main function will be financial. The machinery for applying the funds for the construction and maintenance of roads already exists in the provincial Public Works Department and in the District Boards.

To obtain co-ordination between the railway and the Road Board it is necessary :—

- (a) that a railway representative be co-opted to the District Board when the question of local roads, feeder or otherwise, is being considered ;
- (b) that the Public Works Department refer to the railway administration when arterial or trunk roads are under consideration ;
- (c) that the Public Works Department maintain and furnish periodically to the railway, statements of roads existing and projected ;
- (d) that when questions relating to roads in the area served by the railway are being considered by the Central Road Board, the Railway Board and the railway administration concerned should be afforded an opportunity to represent their views and requirements.

By the above means the close and essential co-ordination between the railway and the Central Road Board will be attained in all the stages of projects submitted for the consideration of the Central Road Board, whether for particular schemes of magnitude or for the grant of lump sum subsidies for the construction or maintenance of minor projects.

## APPENDIX.

*Summary showing the mileage of the feeder roads on the Eastern Bengal Railway system.*

	Existing roads.	Required roads.
	Miles.	Miles.
Paksey District . . . . .	453 $\frac{1}{4}$	28
Katihar District . . . . .	341 $\frac{1}{4}$	109
Dacca District . . . . .	316 $\frac{1}{2}$	75
Calcutta District { Metalled 18 } { Non-metalled 163 }	181	29
Total . . . . .	1,292	241

Reference to the detailed list\* will show that, of the existing roads, the greater part is in a state of disrepair and a large portion is only partly metalled. Many of the roads are only seasonal tracks available during the dry season.

### **Replies to the questionnaire submitted by the East Indian Railway.**

The area served by this railway is so great, and the conditions in the various provinces it traverses vary so much that it is difficult to give explicit replies to the questionnaire. The following remarks may be taken as representing the broad situation from the railway point of view, though a detailed analysis would exhibit many discrepancies.

#### **I. SUPPLEMENTARY QUESTIONNAIRE.**

##### **A.—ROAD DEVELOPMENT.**

1. There is abundant room for improvement both in the raising of the class and the maintenance of the existing roads. More bridges and better upkeep are most desirable. This railway receives numerous

\*Not printed.

applications for intermediate stations at no great distance apart, and it almost invariably proves that the application is based on the lack of proper roads to existing stations. Further the principal roads like the railways follow the shortest route between large towns, and there is urgent need for transverse roads linking up the smaller centres with the main routes.

2. The present condition of most of the roads, especially at certain seasons, must have a very direct influence on the potential traffic in so far as it hampers the free movement of vehicles. Conditions are probably worst in Bengal where portions of the country are practically water-logged for several months of the year, rendering the movements of pedestrians difficult and bringing cart traffic practically to a standstill.

3. This administration would welcome new roads particularly those which would act as feeders to the railway. In the case of bridges of sufficient importance to carry a road as well as the railway, facilities are always offered to the local Government for the construction of the road, the most recent instance being the Bally Bridge across the river Hooghly.

#### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

1. So far as the transport of goods is concerned, the effect has, if anything, been beneficial, but passenger traffic earnings have been in many cases considerably reduced when a motor service plies in competition. The ability of motor vehicles passing through several villages, to set down passengers practically at their door, has a marked effect on the numbers formerly carried by rail.

2. The policy of the railway is to favour the encouragement of all forms of improved transport as this must naturally tend to the general advancement of the whole country, and react to the benefit of the railways in numerous ways. But there are certain important aspects of the whole question that cannot be too strongly emphasised. The railways have the right to expect that in the consideration of schemes for the provision of facilities that have as their object the encouragement of alternative forms of transport, their vested interests will be duly considered and safeguarded.

The experience of railways in Great Britain and the United States has shown that unregulated and irresponsible road transport services have proved a serious menace to the well-being of the railways. The railways in this country are the property of the State and the more important railways are operated under direct State management and the protection of the railway interests is, therefore, of great public importance.

India is still far short of her actual requirements in the matter of railway communications and there is ample room for motor transport in the general public welfare without encroaching on railway revenues.

The urgent need is for an extension and expansion of the whole transport system, and efficient motor transport is possibly as vital to the public welfare as railway transport, but unrestrained competition with

the existing railway lines which are national property should not be encouraged. Unrestrained competition would mean a wasteful duplication of transport activities and this would clearly be against the public interest, for losses in revenue from this cause would in the long run have to be made up by the rest of the traffic handled, and while it might not result in actual increases in charges, it would certainly tend to impede if not arrest the downward trend of railway charges on traffic in general.

It needs only a brief consideration to show that the prospect of unrestrained competition following the provision of any extensive network of road communications is a very serious consideration to the railways. The effects of motor bus competition are practically confined to intermediate and third class traffic. This traffic accounts for 99 per cent. of our total passenger traffic in number and nearly 93 per cent. of our revenues from this source.

The range of a motor bus service may be put at about 50 miles. In several instances it is more than this but 50 miles may be taken as the figure for all practical purposes.

Over 80 per cent. of our intermediate and third class traffic is confined to leads within 50 miles, and three-fourths of this figure move within a range of 20 miles, so that it is obvious that bus competition on any extensive scale is likely to hit the railways very hard.

In view of these considerations, the following points are urged:—

- (1) That in all measures to encourage the spread of mechanical transport on the roads the aim should be an expansion of the existing transport facilities so as to spread the benefits of efficient transport by modern methods over as wide a field as possible.
- (2) The protection of the interests of the railways which are public property should be safeguarded as far as possible. The railways can only maintain their efficiency and provide cheap transportation if their revenues are safeguarded against encroachment by undue competition, and there should be a practical recognition of the fact that the maintenance of an efficient railway service is just as vital to the public welfare as the encouragement of alternative means of transport.
- (3) The public interests will be best served by an extension of transportation facilities. The duplication and overlapping that would result from the encouragement of competitive services along routes which the railways at present serve and can serve with a reasonable degree of efficiency, is wasteful and will prove an economic burden in the long run.
- (4) The aim should be to direct the energies of road transport undertakings into those channels where they will as far as possible increase the transportation facilities of the country. The encouragement of feeder auxiliary services should be of primary importance, and for its part the railway would be prepared to consider the provision of such facilities as may be



considered necessary or practicable in each case to give the public the benefit of a co-ordinated service by road and rail.

- (5) It is realised that competition in some form or in some degree cannot wholly be avoided, but the judicious regulation of such competitive services by the local authorities would confine such competition to reasonable limits and to the extent required to meet the actual public requirements in each case with due regard to the existing facilities afforded by the railway.
- (6) Public motor transport services should be subject to careful legislation and control by local authorities with regard to public requirements of safety, stability, control over fares, schedules of service, etc. Preference in the matter of licensing services should be given to concerns and individuals with the necessary financial status to ensure a permanent and efficient service.

## II. MAIN QUESTIONNAIRE.

A. 8. As the developments referred to are not known, no reply is possible. So far as is known there is no machinery for the co-ordination of road development with the existing railways. On the railway side local Governments are always consulted prior to the construction of new lines. If a Central Road Board is constituted probably the best arrangement to provide for co-ordination would be to have a representative of the Railway Board on the Central Road Board.

## **Replies to the supplementary questionnaire submitted by the Agent, Great Indian Peninsula Railway.**

( I am asked to reply to a supplementary questionnaire issued by the Road Development Committee to railway administrations. In what follows I wish it to be understood that I am expressing my own personal opinion, and that opinion in no way whatsoever commits this administration or the Government of India).

### A.—ROAD DEVELOPMENT.

1. This question is so general that it is quite impossible to give a definite reply without very extensive investigations up to the date when motor transport began to compete with railways, the only competitor of any importance which the railways had, was bullock cart traffic, and this, except for short distances, could be ignored. Generally speaking, I am of the opinion that railways would, naturally, welcome the development of roads, so long as roads were constructed as feeders to railways. It appears to me that railway transport and motor transport have each a definite purpose. It is the duty of railways to provide for the main transport of the country, and for motors to act as feeders to the grand trunk lines. It may be argued :—" Should not motors be allowed to compete with railways and so get their fair share

of the main traffic of the country ? ” The first question one asks is :— “Is it in the interests of the country as a whole ? ” I do not think it is ! Motors, although they have a very much wider range than bullock or horse traffic, are limited to, say 100 miles : they are also limited as to the traffic they can carry. This means that if they compete with railways, they will carry the lighter and more valuable traffic, which is also the most paying traffic, and railways will be left to carry such things as coal, ores, grain, timber, etc. The result will be that the rates for these will require to be raised, and the cost of transport will go up generally. I doubt further whether the structure of the majority of the roads in the area served by this railway is capable of carrying heavy motor traffic, and if motor transport is going to be adopted generally throughout the country, great improvements will be required on practically every road ; the expense will be enormous ; and there is every possibility of motors being so heavily taxed that they will be taxed off the roads.

2. I am asked if the present state and configuration of the road system in the G. I. P. Railway area acts as a restrictive influence on the free movement of traffic, and if so, are there any special localities where this is particularly marked ? This is a very wide question indeed and one which has never been seriously investigated. To give specific examples of a few isolated cases where improvement in roads may be apparent, would not, I think, reply to the queries raised. To enable me to put forward concrete proposals for the improvement of roads covering the extensive areas commanded by the G. I. P. Railway system would require a prolonged investigation of the configuration of the road system covering this immense area. As stated above, until recent years such an investigation has never been required, as railways were able more or less to ignore the competition of bullock cart traffic. Each district would require to be studied separately in close co-operation with the local district officials, who are, undoubtedly, in the best positions to offer suggestions towards improvements. Concerted action in each district between the local civil officials, the railway representatives and a representative of the Public Works Department would appear to be the most suitable means of organising a programme of future road development to co-ordinate with railways in the interests of transport generally. Nothing on these lines has ever been attempted, so I have no data on which to base any definite suggestions, nor on which to venture any criticism on the general configuration of the road system as affecting the movement of traffic either in relation to the G. I. P. Railway as a whole, or in any specific localities.

3. I am asked :—“What is the policy of this administration generally as regards new road construction proposals in the vicinity of the railway, including combined road and railway bridges ? ” Generally, we would welcome the construction of roads as feeders to the railway, but I am definitely opposed to the construction of grand trunk roads parallel to the railway, as I feel that these are not only against the interests of the railway but are against the interests of the country in general. My reasons for this are already explained, namely, that motor transport competition on grand trunk roads will raise the cost of transport throughout the country, which will, undoubtedly, have a very serious effect on trade.



Then as regards railway bridges. Seldom does the occasion arise that a new road bridge should be built to function as a combined road and railway bridge. The difficulty lies in having to forecast many years ahead whether a railway will ever require to utilise such bridges. There are instances where money might have been saved had the original road bridge been built to support a railway, yet on the other hand much capital might lie idle for years if the opportunity of utilising such bridges was not forthcoming. I consider that it would be mistaken economy to carry this policy to any extreme. On the other hand our rules for the preparation of railway projects make it imperative that when any new project is put forward, we should consult the local Government as to the desirability of supporting any important unbridged road in the vicinity on the proposed railway bridge over any important river crossing. I may say that so far as this railway is concerned we are seldom asked by local Governments to provide accommodation for a road on our railway bridges. I think that this, in many cases, is on account of the additional expense which is debitable to local Governments.

#### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

1. So far as our experience of motor transport competition is concerned, this has been confined to passenger traffic. In general our experience has been that motor transport has diverted traffic up to 50 miles from the railway. Up to the present the effect of this road motor competition has not been very serious, but I am definitely of the opinion that the railways will be called upon to face serious losses on this account as motor road traffic develops and new roads are constructed, unless these are to act as feeders to the railways and not in competition thereto. There is little doubt that the railways have in certain cases gained on account of motor transport, although so far there is no direct evidence of this. On many roads motor transport has replaced bullock carts and tongas as passenger-carrying vehicles. Normally I believe that motor owners charge higher rates than bullock carts and tongas, but there is little doubt that time is becoming of very much greater value in India than it used to be, and that even the ryot prefers a quicker means of transport than either the old bullock cart or tonga. We have evidence of that on the G. I. P. Railway. Many buses operate on roads which short-circuit the railway and the railway is losing large sums of money each year owing to this competition. Many of the roads, however, over which buses now ply were, previous to the advent of motor transport, served by tongas. We cannot therefore assume that all the passengers carried by the buses were potential railway passengers. We have, however, definite evidence that on the roads from Poona to Nasik, Sholapur to Akalkot, Sholapur to Pandharpur, Sholapur to Barsi, passenger traffic has been diverted from the railway by the buses. Previous to the advent of motor transport, these distances were too great for many to undertake the journey by tongas or bullock carts.

2. It is our policy to encourage motor transport as a means of opening up the country and as feeders to the railways. Road motor transport is a very unsatisfactory organisation at present. It is mainly in the hands of men with very small capital. On most of the bus routes

several owners operate, competing one with the other. This competition is not on an economic basis ; seldom is money set aside for replacements ; unduly low fares are charged ; and when vehicles are no longer serviceable, they are sold for what they will fetch. When railways were first constructed they had, more or less, the monopoly of transport, and certain restrictions were placed on their powers. Up to the present no restrictions have been placed on motor transport ; it gets the use of the roads free ; it has not got the enormous expense in which the railways have been involved ; the competition may, therefore, be called unfair.

### C.—ROAD BOARDS.

I am asked how the Central Road Board should be constituted. I favour a Central Road Board under the Government of India which would co-ordinate projects put up by local Governments and which would be in direct communication with the Railway Department of the Government of India. Road projects would be submitted by the Road Board to the Railway Department and the Railway Department would undertake the construction of new railways in consultation with the Road Board. I feel very strongly that railway transport and motor transport have each a very definite function, and that in the interests of the country, motor transport must be subsidiary to railway transport and should not act in active competition. Generally my conclusions may be summarised as follows :—

- (i) Road development in such areas as remain undeveloped with the object of giving access to railways, are immensely beneficial to railways and the country in general.
- (ii) Roads acting as feeders to railways in any circumstances are beneficial.
- (iii) Road development in a manner that might place the road in competition with the railway should only be undertaken after due consideration of the various interests involved.
- (iv) The co-ordination of road and railway development is essential, and I would suggest that any scheme for road development which may conflict with the interests of existing railways or proposed railways should be submitted to the railway authorities for criticism.

## **Replies to the questionnaire submitted by the Manager, Jodhpur Railway.**

### I. GENERAL.

The replies contained herein refer only to Sind and not to the State of His Highness the Maharajah of Jodhpur.

2. In a country which is not well served with railways and roads it is essential that road development be carried on with careful consideration of the common interests of transport. Where a railway already exists, the main object in view should be to provide roads as feeders to

the railway and not as alternative routes. Similarly it is necessary to consider the alignment of projected railways which are likely to be constructed in the near future.

3. For this purpose it is essential that effective liaison should exist between the railway authorities and the various local authorities responsible for the construction of new roads.

4. Motor transport has increased at a quicker rate than the provision of facilities for it. In certain districts and at certain times of the year unmetalled roads are good enough for light motor transport, but not for heavy lorries. Where there is any considerable amount of trade, the need for heavy transport becomes increasingly imperative. When it is impossible to depend on the reliability of the local transport, the public will hesitate to spend money on schemes for the development of trade in that particular area.

5. In the Thar, Parkar and Hyderabad districts of Sind through which the Jodhpur Railway passes there are at present few good roads. None of these are metalled (with the exception of one short road from Khesano station to Nasarpur). Roads of this nature are difficult to maintain in a state suitable for wheeled traffic. Certain roads also cannot be used for this form of transport as they cross many small irrigation channels which offer no obstacle to animals but are not provided with bridges adequate for vehicles.

6. In the past no reference has been made to this railway administration in connection with road development, but any information which has now been collected can be placed at the disposal of the local authorities concerned.

7. Notice was recently published of the formation of a committee in Sind for the purpose of discussing general road and railway development, but nothing further has been brought to our notice.

## II. SUPPLEMENTARY QUESTIONNAIRE.

### A.—ROAD DEVELOPMENT.

1. A list of roads is attached as Appendix.

2. The present state of the road system prohibits free movement of wheeled traffic in many places, due to various reasons, such as soft surface, lack of bridges, and the flooding of the roads during the rains. Many of the roads are so worn away that they lie below ground level and become impassable with any rain or flood.

Generally speaking the roads made by the Irrigation Department are kept in the best condition, but as these follow the alignment of the canals they are not necessarily aligned in the best interests of local traffic. The Jhudo Branch was for the greater part of its length built alongside existing roads.

Consequently a considerable portion of the existing configuration of the road system is unsuitable.

The Khadro Branch is very badly served by roads. Short roads are required to connect the stations with such roads that already exist.

On the main line only the newer stations remain isolated from the road system.

3. No policy has yet been framed regarding roads in the vicinity of the railway, and the railway administration has never been approached in the matter. Similary combined road and railway bridges have not been considered.

There are two existing bridges on the Jhudo Branch used for both road and railway traffic which were found economical and suitable with light traffic, but with increasing traffic both on the road and the railway, the construction of such bridges should not be considered.

#### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

1. This railway has little experience at present of the effect of road motor transport on railway business.

The two competitive roads. *i.e.*, from Mirpurkhas to Hyderabad and along the Jhudo Branch, are very little used for traffic and motor traffic is unlikely to develop on them until they are greatly improved.

The one metalled road built recently from Nasarpur to Khesano station has certainly improved the railway traffic to and from this station.

2. While no policy has yet been framed in connection with the encouragement of motor transport, this railway administration is prepared to encourage in every way possible the development of such traffic at the stations. In this connection I would emphasise the necessity of giving early information to the railway administration of all new roads to be built in the vicinity of any station, as it has been found in the past that additional traffic facilities have to be provided at that station. Sufficient notice is required by the railway to enable them to consider the situation fully and to obtain funds for the construction of such works.

#### C.—ROAD BOARDS.

1. It is not clearly understood what would be the function of a Central Road Board.

Even if funds are provided from central revenues for the construction of roads, it is presumed that the detailed consideration of actual projected roads would be dealt with by a Provincial Road Board.

In this case the railway administration would deal only with the Provincial Road Board, and the local combination of the road and railway development would be carried out without reference to the Central Road Board.

#### APPENDIX.

List of proposed roads in Thar and Parkar and Hyderabad districts which it is expected would prove to be of value as feeders to the railway for the purpose of general development of the district.

##### *Metalled roads.*

Chhor Station to Umarkot.

Rahuki Station to Tando Kaisar.

Bobi Road Station to Bobi village.

*Unmetalled roads.*

Connecting the following stations to existing roads in the vicinity—

Jamrao.

Hasisar.

Saindad.

Kamaro Sharif.

## **Replies to the questionnaire submitted by the Agent, The Madras and Southern Mahratta Railway.**

### **I.—SUPPLEMENTARY QUESTIONNAIRE.**

#### **A.—ROAD DEVELOPMENT.**

1. Generally speaking the system of local roads is inadequate to permit of the rural population availing themselves conveniently of the railway facilities. It is considered the improvements required most urgently are in the local road systems. The preparation of proposals would involve a survey of existing conditions which would take several months. If there is an assured prospect of roads being constructed or improved, the railway would be willing to prepare a statement of the local roads which are considered most desirable on being informed of the mileage to be dealt with annually in the area served by this railway.

2. Many of the existing roads get into bad order after comparatively light rain and under this condition the carting of goods to the railway is restricted. Extracts\* are attached from petitions for new stations received in this office. These indicate the defective road systems in certain areas. The instances are by no means exhaustive, but are collected from papers immediately available.

3. This railway would favour an extension of new roads giving the local population convenient access to the railway stations. Such road will be most effective when the general trend is at right angles with rather than parallel to the railway; under these circumstances the question of combined rail and road bridges would scarcely arise. Interlaced road and rail on the same bridge results in great inconvenience to both and could only be considered in the case of the lightest feeder lines where both rail and road traffic are inconsiderable. Parallel road and rail on the same piers may not show much economy over separate bridges, while a double deck bridge is only suitable in certain situation.

#### **B.—MOTOR TRANSPORT AND MOTOR TAXATION.**

1. Where roads lead to railway stations and the maintenance of the roads is good, the motor traffic tends to develop rail traffic. Where roads run for considerable distance parallel to the rail alignment and especially where the road is nearer the centres of population the motors tend to divert passenger traffic from the railway. This has been most noticed on the Poona-Miraj section.

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\*See Appendix to replies.



2. The railway has taken no active steps to encourage motor traffic. The railway would be glad to see an increase in such motor services as provide facilities for persons at a distance reaching the railway.

### C.—ROAD BOARDS.

1. Railways are mainly interested in the detail of road construction programme. Before any local programme is decided on, the railways serving the area should be consulted or a railway representative should be on the body which considers the programme. In the case of any Central Board for all India the Railway Board would be in the best position to represent railways.

## II.—MAIN QUESTIONNAIRE.

### A.—ROAD DEVELOPMENT.

8. As far as is known no provision exists for co-ordinating road and rail development. Programmes for new branch lines are prepared in consultation with local Governments but it is not known how far such programmes are considered when deciding on road development. It is considered that railways should be consulted before any regular programme of road construction is approved.

### C.—ROAD BOARDS.

2.(c) If a Central Road Board for all India is constituted its functions should consist in a distribution of central funds and possibly in the preparation of standard specifications. Actual construction programmes should be prepared by provincial boards or possibly by local boards controlling the work in smaller areas, the most urgent need is improved local communications. Such local boards should include amongst their members a representative of the railways in the area and railways should be consulted in any general programme proposed.

## APPENDIX.

*Extracts from petitions received by the M. and S. M. Railway.*

### I.—GUNTUR DISTRICT.

Mile 256, North-East line.

“Chiluvur is a great fruit growing village. In the rainy season hundreds of fruit baskets go to Bezwada and Tenali. Since we have no road convenience, we are obliged to send all our produce over the canal to our great disadvantage. This canal service is a very slow affair and hinders much the progress of commerce in these villages.”

Mile 237, North-East line—village Moduku.

“Especially in the rainy season, it is extremely difficult to reach these stations (Nidubrolu or Tsundur) by any short by-path as in other seasons and travellers have to take roundabout roads covering a distance of more than 9 miles in order to have the benefit of train service.”

Mile 202, North-East Line — Kodavakoderu village.

“Since the railway station at Chinnaganjam and Vetapalem are at a distance of more than 5 miles from the village, and due to the absence of any road to these stations, the dealers of fuel are obliged to seek the help of boats in the matter of transportation.”

## II.—NORTH ARCOT DISTRICT.

Mile 98, South-West line—Melalathur village.

“Melalathur is a big village and commercial centre. To reach Gudiyattam railway station, one has to cross a big stream which is flooded with a rapid flow of a large volume of water from the Eastern Ghats during the rainy season, making it unfordable for traffic during a number of weeks and sometimes longer. The only road traversing the stream over a low lying rough built dam is always troublesome and during the floods absolutely useless. It has a swift current, unable even for people to attempt to get through.”

Mile 60, South-West line—24 villages.

“We, the humble people going to far off places, have to choose either the Thalangai or the Walajah Road railway station. So also is the case of persons coming to these villages from far off places. These two stations are not connected with these villages either by good roads or by good paths. Consequently, we find it most inconvenient, especially during the rainy season, as we have to cross tank beds covered with water, and, in doing so, we will have to walk a greater distance through crooked paths full of rough stones and thorny bushes. In the case of importation of goods and carrying them to these villages, we need not say the untold miseries as to cost and inconvenience we feel.”

## III.—CHITTOOR DISTRICT.

Mile 153, Dharmavaram-Gudur section—Pandrangivaripalli village.

“We also submit, in this connection, that there are no proper means of communication from the above villages to the Chandragiri railway station, and you may yourself imagine the difficulties and risks in carrying the products from these villages either in the daytime or during the nights.”

## IV.—BELGAUM DISTRICT.

Balla Bagewadi village, Mile 204 from Poona, Poona-Belgaum section.

“Balla Bagewadi suffers from lack of good roads. The roads that are already there get worse and muddy in the monsoon, which is also a busy season, on account of a number of tiny streams that flow through and across them and thus impede enormously the smooth conveyance of goods to and from the station.”



## Replies to the questionnaire submitted by the North Western Railway.

### I.—SUPPLEMENTARY QUESTIONNAIRE.

#### A.—ROAD DEVELOPMENT.

The general policy of this railway has been explained in a letter\* sent to the Punjab Government in February 1927. Briefly it is considered that the best use for the funds available will be to build radial feeder roads from the centres served by the railway.

There are a certain number of routes on which traffic prospects warrant a railway being built, in some cases with a small guarantee from the local Government. The capitalised values of these guarantees are considerably less than the cost of building roads along these alignments, and maintaining them. The volume of traffic is practically never large enough to justify more than one form of communication, and the money available can be spent to far better advantage in improving or building roads to act as feeders rather than on roads which will act as competitors with the railway. When new railways involve large bridges being built, the local Government is always consulted as to whether they wish for a road bridge to be combined with the railway bridge. In cases where such a combination is built, the local Government pays for the work done beyond that required for a plain railway bridge.

#### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

Motor competition in cases where the road and railway are parallel has had a most serious effect on third class passenger earnings, the most important source of railway income. It is unfair competition as the railway is hedged round with regulations in the interest of the safety and convenience of the passenger, whereas till now the motors have been free from any effective control or supervision. However, it appears unlikely that up to 30 miles or so the railway can ever compete. There is also some lorry competition in valuable goods of small bulk, but at present this is not comparable with the passenger motor situation.

This administration views favourably motor services which can render valuable services in acting as feeders to the railway. There are many areas where a railway cannot be considered as a commercial proposition. A motor service in such areas will, it is hoped, encourage the travel habit, which will benefit long distance railway services, with which motors cannot compete.

#### C.—ROAD BOARDS.

It is essential that there should be railway representatives on any Road Board, to form a link between the road and railway authorities. The commercial information in the possession of the railway would be most valuable to such a board, and close co-operation, which cannot be maintained by letter writing alone, is essential, to prevent clashing of schemes and consequent waste.

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\*See Appendix to these replies.

## II.—MAIN QUESTIONNAIRE.

A. 8. A railway representative attends meetings of the Punjab Communications Board. It is suggested that in future railway officers representing not only the construction but also the transportation and commercial branches of the railway should be made members of the Board.

Road development on the lines already indicated should assist railways by increasing their volume of traffic, but a policy of building or metalling roads parallel to railways will have a very serious effect on their earnings.

C. 2 (c). The N. W. R. serves six provinces. If road construction policy were to be directed by a Central Road Board, it would assist the railway in that the same road policy would obtain throughout the area covered by it.

## Further Replies to the questionnaire submitted by the North Western Railway.

### I.—SUPPLEMENTARY QUESTIONNAIRE.

#### A.—ROAD DEVELOPMENT.

1. The North Western Railway serves six provinces in greater or less degree, and it will be realised that conditions vary very greatly over such a vast area. The frontier provinces of Baluchistan and the North-West Frontier Province are already very well served by the system of military roads and with one or two exceptions such as the proposed Charsadda-Mardan-Swabi and Havelian-Garhi Habibulla Railways, there appears little scope for further extensions to communications in the immediate future. The same applies to that part of the Punjab lying north of the Salt range where the sparse population, scanty cultivation and small trade do not seem to be in urgent need of further railway communications.

In the Dera Ghazi Khan district of the Punjab, in the area to be irrigated by the proposed Thal canal in Bahawalpur State, and in Sind roads are few and bad. The future of these areas however is very different. There seems to be no likelihood of any great increase of population in the Dera Ghazi Khan district, hence improved communications there seem unlikely to be as useful as is likely to be the case elsewhere. The other areas mentioned are either actually in course of development by irrigation or will be developed if projected schemes materialise. The areas covered by the Sutlej Valley and Lloyd Barrage Irrigation Works will be catered for by the railways built or shortly to be built, but there is a vast field for feeder roads, radiating from the railway stations in these areas. Arterial communication will be provided by the railways and for many years to come the construction of these feeder radial roads will absorb all available funds, hence it is to be hoped that the money available will be concentrated on the provision and improvement of these badly needed roads in preference to any scheme of arterial road development.

In the rest of the territory served by the North Western Railway the standard of development is much further advanced. Careful consideration is required to ensure co-operation between roads and railways, and not wasteful competition. In many cases unmetalled roads run parallel to existing railways. The carriage of road metal at a very cheap rate by the railway, and the short distance to be covered by the more expensive carting, is liable to offer strong temptation to road authorities to metal these roads, in order to show good results in low costs of metal-ling and maintenance, as compared with work on roads at a greater distance from the railway. The absence of stone in the Punjab plains makes transportation charges an important part of the cost of road metalling.

2. There is much to be done to improve the present road system. Few radial roads are metalled which means that a little rain cuts off access to the railway from towns and villages at any distance from stations.

The tendency already mentioned to metal roads parallel to existing railways encourages competition to the detriment of the railway. It usually means that for short services the railway must retire from the contest and lose a large proportion of its short distance passenger traffic or alternatively run an intensive service which though possibly a convenience to some of the public gives a very poor return.

3. The transportation needs of any locality in the present state of development of North-West India can be adequately served by one of three methods :—

(a) A railway paying its own way.

(b) A railway with a subsidy from the local Government.

(c) A metalled road.

(a) The State provides capital on which it gets standard interest of  $4\frac{1}{2}$  per cent or more.

(b) The State provides capital on which it gets less than the standard rate of interest, but the loss of interest to the Central Government which provides the capital is recouped from provincial Government funds.

(c) The State in the shape of the provincial Government provides capital on which it gets no return, and also has to provide yearly for maintenance.

When the prospects indicate that method (a) can apply, it would hardly seem fair to the public as a whole for it to be called upon to build a road with heavy maintenance charges, for the benefit of motor vehicle owners. Incidentally too, the actual cost of goods transportation by road must be far higher than by rail owing to the difference in frictional resistance to motion, and the experience of the world is that beyond 30 miles the railway is superior to the road for most classes of transportation. In many cases however the choice lies between (b) and (c). Frequently the capitalised value of a subsidy to a railway (which is usually only required for a limited period) costs a local Government much less than the cost of building a road, *plus* the capitalised value of its main-

tenance. This holds even with the present standard 12 ft. macadam road, and it should not be forgotten that any sort of intensive motor traffic would soon demand broader and less dusty roads.

There remain however many instances where the traffic prospects cannot justify a railway of any sort, but where the construction of a road would open up the country. Roughly it may be said that the minimum distance apart of railways should be about twenty miles. In the opinion of this administration the construction and metalling of roads in these circumstances, and of radial roads will afford enough work to absorb funds available for many years, specially when the rising expenditure on maintenance as road mileage increases is remembered.

The physical features of the Punjab with its five great rivers call for large and expensive bridges which would put a severe strain on the provincial finances to construct if built for roads alone. It is the policy of the railway to build all its large bridges for combined road and railway traffic where the provincial Government is willing to meet the extra cost due to providing a roadway and the Irrigation Department in their turn are always willing to build new weirs in such a way that they will also carry railway girders. It may be mentioned in this respect that the present programme of railway extension entails bridging every large river at least once with the exception of the Beas and in every case where the railway is building an entirely new bridge the local Government has been or will be given the opportunity of paying the additional cost of adding a roadway.

#### B.—MOTOR TRANSPORT AND MOTOR TAXATION.

1 and 2. The railway is already suffering severely from road motor competition on some sections particularly in third class passenger traffic. There are well known advantages of motor transport for short distance traffic such as door to door facilities, more frequent services, ability to vary services according to the needs of traffic, and absence of formality in taking tickets. But at present in addition to these permanent advantages, motor traffic is helped by other inducements which are not likely to remain much longer. These are firstly, cheapness owing to the wholesale overcrowding that takes place, owing to the absence of any heavy license fee to compensate for damage to roads, and owing to the ability of motor owners to vary their fares according to the conditions of the moment, secondly, to a high door to door speed on short journeys, partly due to reckless driving which is causing frequent accidents, sometimes with fatal result, which are apt to be overlooked, as they rarely attain publicity. Comparisons should take into account the probable effect on motor services, when regulations for the safety of the public are introduced, and steps taken to shift part of the burden of road maintenance to those mainly responsible for the wear and tear.

There is ample scope for a large increase in motor services in opening up communications with business centres at a distance from railways, but unfortunately many motor owners at present seem to find it more profitable to run along developed routes in competition with the existing railways rather than to open up new routes, which may take



time to develop. The railway has every reason to regard the latter favourably as increased trade must have a good effect on railway earnings both passenger and goods ; in fact were there no private motor services it would probably be desirable to introduce connecting motor services, similar to those which already run to Murree, Kashmir and Dalhousie in connection with the railway.

### C.—ROAD BOARDS.

1. The constitution of a Central Road Board would be welcomed particularly if the railway had a definite representative. The mass of information on commercial and transportation matters accumulated by railways in the ordinary course would certainly be of great value to such a body, and the services of trained experts in the highly technical matter of predicting the traffic likely to result from improved means of communication would be available. The laying down of standards throughout India for motor transport on similar lines to those enforced in Great Britain by the Ministry of Transport, on matters such as permissible load, dimensions, qualifications of drivers, etc., would be most useful and the general policy on matters affecting roads and railways could best be settled by consultation between a Road Board and the Railway Board, to ensure that such questions would be regarded from the standpoint of the best interests of the country as a whole, and not from a more narrow departmental basis.

### II.—MAIN QUESTIONNAIRE.

A. 8. This question has already been dealt with in previous paragraphs but attention is again drawn to the present tendency to concentrate on the metalling of "arterial" roads rather than on the construction or metalling of radial roads. It is as well to remember that in spite of the growth of revenue as prosperity increases, that every road built saddles the State with a permanent recurring charge for maintenance, and that the maintenance costs will rapidly increase per mile of road as motor traffic continues to increase. Of course some arterial roads are necessary to allow full play to that fluidity which is one of the characteristics of motor traffic, in other words to allow for the transfer of motors from areas where work happens to be slack to others where the demand is greater, and so long as these roads do not directly parallel railways they are no doubt useful to the public and not objectionable to the railway though the latter can provide facilities for any but short journeys at a cost with which motor traffic cannot hope to compete.

The present organisation needs strengthening. Not only is it essential that the Provincial Road Boards should be kept fully aware of railway development schemes, but a more rapid and certain interchange of views on such subjects as level crossings, irrigation crossings and land acquisition is badly needed. Roads, canals, and land are all matters affecting the provincial administration, and experience shows that considerable delay and sometimes wasteful expenditure occurs when there is no co-ordinating authority competent to deal with these matters.

The railway administration should be represented on the Provincial Communication Board either by a personal representative of the Agent or by experts in construction, commercial matters, and transportation matters, and it would be a very great help to the railway if in its turn it could deal with a central authority competent to expedite the settlement of such matters as have to be jointly arranged.

C. 2 (c). This matter has already been dealt with above.

A copy of \*letter No. 133/W/42, dated 12th February 1927, from the Agent of the railway to the Punjab Government, which explains the views of the railway on the general policy to be followed, is attached.

Paragraph 10 of this letter however requires modification as the Railway Board has declared its policy to be that it regards motor traffic favourably, as the formation of the travel habit will have a good effect on railway passenger traffic.

#### APPENDIX.

COPY OF LETTER FROM THE AGENT, NORTH WESTERN RAILWAY, LAHORE, TO THE SECRETARY TO GOVERNMENT, PUNJAB, P. W. D. (BUILDING, ROADS AND HYDRO-ELECTRIC BRANCHES), LAHORE No. 133-W/42s, DATED THE 12TH FEBRUARY 1927.

#### *Radial Roads.*

I beg to invite the attention of the Punjab Government to the question of the relation between the road and railway programmes of the province.

2. I fear that there is a distinct danger of competition arising between these forms of communication to the detriment of the best interests of the province and I would strongly urge the view that at any rate at the present stage of development of the province, roads and railways must normally be considered as supplementary to each other.

3. An exception must of course be made in the case of main through routes of both railways and roads, which serve purposes beyond the immediate needs of the province or local areas.

4. So far as the railway is concerned the through main routes may be said to have been constructed but the system of through trunk roads is not yet complete.

5. In the remarks that follow it must, therefore, be remembered that I am dealing with the relations between the branch or cross-connecting railways which constitute the bulk of our programme of railway extensions and the roads which it is proposed to metal for local communication as apart from through roads.

6. Some of the road projects to which exception can be taken are termed arterial roads. In so far as these are intended to form portions of through trunk roads, there may seem to be good reasons for metalling, but I venture to urge that in such cases the portions of through routes which should be metalled at the present stage are those lacking in railway communication, existing or projected.

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\*See Appendix.

7. The fact that funds for railways are found by the Central Government must not be allowed to cloud the issue. The question of improving communications is mainly one of finance and it is important that the limited funds available should be utilised to the best advantage of the province.

8. Unlike roads, railways are definite commercial concerns and have to be financially justified before their construction can be undertaken.

9. The result is that with the existing network of railways in the Punjab it is by no means easy to justify further railway extensions in this province, and in most instances the setback which is inevitable if road motor competition is encouraged by the metalling of roads alongside proposed railways will be fatal to the prospects of railway extension.

10. Stimulation of travel due to improved conditions resulting from the metalling of roads, is a vague and uncertain argument, and cannot be considered as an offset against the definite setback just mentioned.

11. The heavy recurring cost of metalled roads from interest on capital and expenditure on maintenance and repairs is too well known to need emphasis. A railway, though it has heavy recurring costs and also incurs expenditure in working, has yet the great advantage from the financial point of view that it has a regular revenue which wholly or partially covers the recurring costs.

12. The annual cost of a railway to provincial funds is therefore limited to those branches, the construction of which cannot be justified on their financial prospects and for which the provincial Government accepts a limited guarantee which is far less than the annual cost of a metalled road of equivalent length.

13. Speaking generally, a railway serves the needs of the bulk of the inhabitants of the area to a far greater degree than a metalled road on a parallel alignment by providing cheap and efficient means of transport for both passengers and goods. As a matter of interest it may be mentioned that the cost of moving a maund of goods one mile by road is roughly as much as over a distance of a dozen or more miles by railway, varying according to the commodity and other circumstances. The masses in fact benefit to a far greater extent from the construction of a railway than of a road.

14. In the present stage of development one of the chief functions of roads should therefore be accepted as that of feeding the railways and this can be carried out by building short roads radiating out from stations. The effect of constructing radial roads will be to enhance the prospects of proposed railways instead of thwarting them as in the case of metalling roads parallel to the railways.

15. In order to meet the demand of more frequent and fast train services which has arisen from the growth of motor traffic this administration has already improved the train service on many sections and has further obtained some steam coaches for experimental use on frequent and fast local services. It is confidently expected that this experiment will be successful, in which case steam coaches will be made more general for local services.



16. I trust from what I have said that the Punjab Government will accept the view that roads and railways must work with each other and they will see their way to withdraw from the policy of metalling roads parallel to railways or at least those parallel to proposed railways which we expect to justify either on their merits or with the help of a small guarantee.

17. This question in my opinion calls for serious and early consideration in view of the programme for converting Class II to Class I roads accepted at the meeting of the Communications Board held on January the 7th, 1927. This action was taken in spite of the protest of Mr. F. S. Bond, Deputy Chief Engineer (Surveys), who represented my views to the Committee and emphasized that 11 out of 15 roads in this programme are parallel and close to existing or proposed lines of railway.

18. As I tour over the railway on inspections I see frequent signs of activity on the provision of roads running alongside the railway boundary. A case in point is the road that is being constructed at the present time in the Nili Bar area between Arifwala and Mailsi alongside the Sutlej Valley Railway, which when recently relaid since the War has been realigned purposely to serve this area. It is difficult to see the necessity for this parallel road and it would almost seem as if the alignment had been chosen for facility of carrying of stone metalling rather than from the point of view of its usefulness as a road. Even a parallel arterial road will usually open up more country if aligned at some miles from the railway. In this instance I suggest that the road might with advantage have followed the abandoned railway alignment or taken the direct route *via* Jamlara and Luddan and thus served a separate area.

19. The Shadara-Narowal Railway—although opened so recently as December 21st—is carrying a very fair traffic in passengers and goods, but during the monsoon it will be difficult for this traffic to reach the railway. The construction of radial roads leading to the more important stations appears therefore to be an urgent necessity in connection with this and other new railways under construction such as the Amritsar-Narowal, Jassar-Chak Amru, Kangra Valley, Chak Jhumra-Chiniot, etc.

20. If the Punjab Government are able to endorse my views, I suggest that any conflict between the roads and railway programmes can be avoided by a close co-operation in the initial stages between yourself and the Secretary, Communications Board, on the one hand and my Chief Engineer for surveys and constructions and his Deputy on the other hand. This should ensure that railway schemes are not prepared for areas which can be better served by roads or which are likely to be served by a proposed trunk road and that other roads are constructed to feed the stations in areas served or to be served by railways.

21. In this connection I may remind you that the Public Works Department road metal is carried by the North Western Railway at less than half the public rates and even at lower rates than railway material. This shows that this administration is appreciably assisting in the matter of road construction. It can, therefore, claim sympathetic consideration of the view that roads should be constructed to feed the railway.

22. It is strongly recommended that in the first instance only short lengths of roads radiating from stations should be included in the programme for improving communications by road, and that the programme for metalling roads running parallel to new railways should be postponed indefinitely until the new railways have been working for some years and the economic necessity for these roads is fully established. The proposed roads parallel to new railways which should in my opinion be postponed indefinitely are the following :- -

- (1) Sargodha-Lyallpur.
- (2) Sambrial Daska-Gujranwala-Hafizabad.
- (3) Lahore-Patti-Hariki.
- (4) Gujarat-Bhalwal.
- (5) Lyallpur-Tandlianwala-Okara-Dipalpur.
- (6) Narowal-Amritsar.
- (7) Rohtak-Gohana-Panipat.
- (8) Pattoki-Chunian-Wasawewala (Haveli).

23. Funds could then be diverted to the purchase of land, and construction of roads (metalled or otherwise) radiating from important stations on new and existing railways.

## **Replies to the supplementary questionnaire submitted by the Rohilkund and Kumaon Railway.**

### **A.—ROAD DEVELOPMENT.**

1. No. The area served by this railway is generally well provided with roads where the construction of these is practicable.

This railway is very largely concerned with the export of forest produce and the existing facilities are believed to be sufficient and road development generally is not an urgent problem.

2. No, but the construction of feeder roads to stations would be an advantage.

For instance on the two branches—Moradabad to Kashipur and Pilibhit to Shahjehanpur, there is no connection at the majority of stations with the adjacent District Board roads.

3. At present the railway is not specifically consulted as regards new road constructions except in so far as they may be discussed by the U. P. Board of Communications. The administration considers that, taking a liberal view, the advantages of metalled roads outweigh the loss caused by the diversion of traffic.

Combined road and railway bridges are not favoured as a general proposition, as they cause delay to both road and rail traffic.

Also at the present time it is believed that at no railway bridge on this system is there a proposal that it could be advantageously used as a combined bridge.

## B.—MOTOR TRANSPORT AND MOTOR TAXATION.

1. The only section of the line adversely affected by motor traffic is between Bareilly and Baheri on the Kathgodam road, where the road and the railway run practically side by side. The motor buses undoubtedly are a benefit to the public as they pick up passengers at the courts and other main places and set them down at the villages.

Judging from the frequent changes in vehicles and owners it would appear that, as soon as repairs and renewals have to be dealt with, the motor bus business is not profitable when running in direct competition with the railway, but nevertheless it is certain that motor bus traffic will continue and probably increase between Bareilly and the neighbouring town of Baheri.

## C.—ROAD BOARDS.

It is suggested that the provincial member of the proposed Central Road Board should be a member of the Railway Advisory Committee.

This railway is already represented on the Provincial Board of Communications.

It is considered that this will give the co-ordination referred to in the main questionnaire.

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## South Indian Railway.

The views of the South Indian Railway correspond with those submitted by the Madras and Southern Mahratta Railway so far as replies to the questionnaire are concerned.